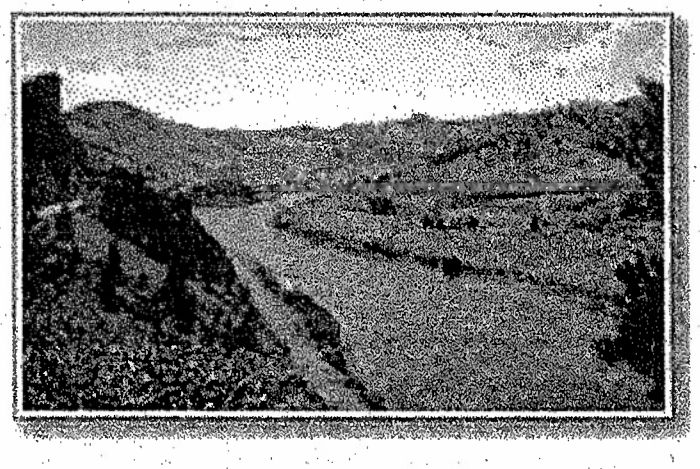
Final

Malmstrom AFB
Montana

Environmental Assessment

Weapons and Munitions Maintenance and Storage Complex



April 2001

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
18 MAY 2001	**EA**	**18-05-2000 to 18-05-2001**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
EA for Weapons & Munitions Maintenance and Storage Complex	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
Dean Converse; Elizabeth Gibeau; Brian Goss; Carmen Hansen; Robert Lopez	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
341 Civil Engineer Squadron,39 78th st N,Malmstrom AFB,MT,59402	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	I0. SPONSOR/MONITOR'S ACRONYM(S)
	I1. SPONSOR/MONITOR'S REPORT NUMBER(S)

I2. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution unlimited

I3. SUPPLEMENTARY NOTES

I4. ABSTRACT

This EA is to study the proposed action which is to provide proper starage and handling of the modern weapons systems currently maintained at Malmstrom AFB and the alternatives.

I5. SUBJECT TERMS

I6. SECURITY CLASSIFICATION OF:			I7. LIMITATION OF ABSTRACT	I8. NUMBER OF PAGES	I9a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**182**	

FINDING OF NO SIGNIFICANT IMPACT

Upgrade Weapons and Munitions Maintenance and Storage Complex, Malmstrom Air Force Base, Montana

This Finding of No Significant Impact (FONSI) was prepared in accordance with the National Environmental Policy Act of 1969, the Council on Environmental Quality regulations (40 *Code of Federal Regulations* (CFR) § 1500-1508), and the *Air Force Environmental Impact Analysis Process* (32 CFR § 989). The decisions included in this FONSI are based upon information contained in the Environmental Assessment (EA) for the Weapons and Munitions Maintenance and Storage Complex (WMMSC), Malmstrom Air Force Base (AFB), Montana. The EA analyzed potential environmental consequences that could result from implementation of the Proposed Action or an alternative.

BACKGROUND

The United States Air Force Space Command proposes to upgrade the WMMSC at Malmstrom AFB, Montana. The existing WMMSC is an aging facility that was built prior to the introduction of most modern weapons systems and consequently cannot efficiently store and handle these modern systems. Many of the older munitions storage buildings also have problems with water infiltration and flooding which restricts the use of the buildings and requires frequent costly repairs. As a result, the base must operate the facility with several restrictions on storage capability and handling in order to meet all current security and safety requirements, and must also spend an average of $1.3 million annually to keep the facility in an acceptable condition for its current function.

The Proposed Action will upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements. The proposed facility design will incorporate enough flexibility to accommodate any foreseeable changes to the current base mission that might occur in the future.

The project will include demolition of seven buildings, upgrade of existing facilities, and construction of new facilities. To facilitate planning and design of the construction, an explosives hazard reduction inspection was conducted and identified 13 explosive storage and operating facilities currently in use at the WMMSC. There are four earth-covered magazines (Buildings (Bldg) 1823, 1824, 1827, and 1828), two segregated magazines (Bldgs 1830 and 1832), and five multi-cubicles (Bldgs 1870, 1871, 1872, 1873, and 1874). The remaining explosive-sited facilities consist of two maintenance and operating facilities (Bldgs 1869 and 1840), one administrative facility (Bldg 1835), and one reserve fire team facility (Bldg 1833). The proposed design will account for the amount of explosives that can be stored given the location and type of facilities, while minimizing the risk to personnel working in the area and other people that could be located within explosive safety areas.

New construction associated with the Proposed Action includes a new Security Entry Control Point (ECP) consisting of two buildings, one with an enclosed vehicle entrapment

area and one with a pedestrian entrapment area; a new administration building with office space for 12 personnel; 4 new earth-covered magazines for nonconventional munitions; 6 new standard Munitions Storage Modules; and a vehicle storage shed. Proposed renovation includes replacing the heating, ventilation, and air conditioning system and lighting, and adding a second maintenance bay and an office area to Bldg 1869; installing new doors, drain trenches, and concrete topping slabs for drainage at Bldgs 1870 and 1874; and upgrading existing storage igloos (Bldgs 1823, 1824, 1827, and 1828) with new doors and lightning protection.

Renovation of Bldg 1840 will include upgrading the heating, ventilation, and air conditioning system including controls, boilers, chillers, ductwork, pumps, piping, and connection to the Energy Monitoring Conservation System; lighting improvement; structural and non-structural seismic rehabilitation; renovating office spaces; removing asbestos; replacing the existing armory door; and modifying four bays within Bldg 1840.

The WMMSC upgrade also includes improvement of drainage, renovation of two sanitary sewer systems and lift stations draining north and south of the WMMSC, development of a parking area outside the northwest corner of the WMMSC, construction of new and reconstruction of existing access roads, expansion of security fencing, and upgrading of site utilities (including communications, water, and natural gas). Bldgs 1837, 1864, 1867, 1868, 1871, 1872, and 1873 will be demolished.

The WMMSC upgrade is programmed to start in Fiscal Year 2005 and continue for approximately 2 years. However, it is possible that funding could be authorized earlier. The total construction cost is estimated at $30.7 million. Funding, and consequently construction, could occur in two phases. Generally, Phase I involves upgrading the Munitions Storage Area (MSA), while Phase II involves upgrading the Weapons Storage Area (WSA).

The EA evaluated the Proposed Action (WMMSC Upgrade), an Implementation Alternative (construction of separate, adjacent WSA and MSA areas of the WMMSC), and the No Action Alternative. The Proposed Action is the Air Force's preferred alternative, and would cause fewer long-term environmental impacts than either alternative. Under the No Action Alternative, the WMMSC would be maintained in its current condition, with emergency repairs continuing and the likelihood of further damage from water seepage to some structures. Lack of adequate maintenance facilities would continue, with personnel conducting maintenance in shifts to accommodate space limitations.

DECISION

Based on the review of the EA, I have decided to proceed with the upgrade of the WMMSC at Malmstrom AFB. Implementation of the Proposed Action will upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The following text summarizes impacts that will likely occur from proceeding with the upgrade of the WMMSC.

Upgrade of the WMMSC will have no significant adverse impacts on **air quality** from heavy equipment and earth-moving activities during demolition and construction. No significant air quality impacts will result from operation of the facilities.

Impacts to **geological resources** will result primarily from disturbance of the ground from construction (trenching or excavation) activities. These activities will affect a shallow layer of the underlying geology in some areas. Trenching, excavation, grading, and compaction during construction will directly impact topography and soils. The WMMSC upgrade will result in about 16 acres being disturbed; impacts to soils and the underlying geology will not be significant.

Direct impacts to **water resources** will result primarily from disturbing the ground during construction activities and from altering surface hydrology. Impacts to groundwater from excavation will not be significant. No adverse impact to bedrock aquifers will occur because of their extensive depth below the surficial aquifers. The shallow alluvial aquifers will not be significantly impacted. The slight decrease in recharge area will not significantly affect the underlying aquifers. Short-term disturbances from construction activities during the WMMSC upgrade could cause wind or water soil erosion; this could lead to increased sedimentation of nearby surface waters. Implementing best management practices will reduce the potential for erosion and sedimentation. The quality of groundwater and surface water will not be significantly affected. There will be no impacts to floodplains.

Impacts to **biological resources** will be short-term, and will generally occur within a portion of the base that has already been disturbed by construction activities such as minor digging, grading, stockpiling soil, and compaction from construction equipment. Construction activities will minimally affect both vegetation and wildlife on Malmstrom AFB, but with no significant impacts. No critical habitat or threatened or endangered species will be affected by the WMMSC upgrade. No wetlands will be filled as a result of the construction activities; no Section 404 permit will be required. Silt barriers would be placed to protect wetlands from adverse environmental impacts from water runoff and erosion during construction activities. Minimal indirect disturbance of wetlands caused by runoff will occur but will not be significant.

There are no known **cultural resources** within the area of the WMMSC upgrade. Construction activities will occur at previously disturbed areas; therefore, impacts on archaeological resources are unlikely. No buildings to be demolished as part of this action are listed or eligible for listing on the National Register of Historic Places.

The impacts on the **noise** environment are related to the magnitude and duration of noise levels generated during demolition and construction and the proximity of noise-sensitive receptors to the noise source. Construction and traffic associated with the WMMSC upgrade will not significantly influence the noise environment, because the noise generated will be intermittent and will occur during daytime hours. After construction, the noise environment in the area of the WMMSC will return to pre-construction levels; no long-term changes to the noise environment will occur.

Impacts to **socioeconomic resources** from the WMMSC upgrade will be beneficial for employment and income in the region of influence, Cascade County, as a result of

construction expenditures for labor and materials. Any population impacts will be short-term and will not be significant. No significant long-term impacts will occur to the local economy.

There will be no **environmental justice** impacts as a result of the WMMSC upgrade, as no low-income or minority populations reside near the WMMSC site.

Transportation impacts will not be significant. Parts of the road network at Malmstrom AFB will be temporarily affected by the WMMSC upgrade during construction activities. Short-term, but not significant, impacts will result primarily from temporary disturbances from construction equipment and increased traffic from construction worker vehicles and dump trucks. After construction, the traffic levels in the area of the WMMSC will return to pre-construction levels; there will be no long-term impacts. Helicopter flights at Malmstrom AFB will not be affected.

The WMMSC upgrade will not have significant adverse impacts to **environmental programs**: human health and safety, radiation safety, asbestos, lead-based paint (LBP), polychlorinated biphenyls (PCB), hazardous materials and waste, the Installation Restoration Program, solid waste, wastewater, and storm water. There will be beneficial impacts from the removal of asbestos, LBP, and PCBs from facilities and from the upgrade of wastewater and storm water management systems.

Cumulative impacts are those changes to the physical, biological, and socioeconomic environments that will result from the WMMSC upgrade in combination with reasonably foreseeable future actions. There will be no significant cumulative impacts from the WMMSC upgrade. The short-term increases in air emissions, and the non-significant impacts predicted for other resource areas, will not be significant when considered cumulatively with other ongoing and planned future activities at Malmstrom AFB and the nearby off-base area.

CONCLUSION

In accordance with the Council on Environmental Quality regulations implementing the *National Environmental Policy Act* of 1969, as amended, and the *Air Force Environmental Impact Analysis Process*, 32 CFR 989, an assessment of the identified environmental effects has been prepared for the WMMSC upgrade at Malmstrom AFB. I have determined that the Proposed Action will have no significant impact on the quality of the human environment. Thus, an Environmental Impact Statement is not required.

18 May 01

JAMES K. EKEN, Colonel, USAF — Date

Chairman Environmental Protection Committee

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS:

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

SECTION I - PROPONENT INFORMATION

1. TO *(Environmental Planning Function)*	2. FROM *(Proponent organization and functional address symbol)*	2a. TELEPHONE NO.
341 CES/CEVC	341 CES/CEC	x6159

3. TITLE OF PROPOSED ACTION
Upgrade Weapons Storage Area

4. PURPOSE AND NEED FOR ACTION *(Identify decision to be made and need date)*
See attached.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES *(DOPAA) (Provide sufficient details for evaluation of the total action.)*
See attached.

6. PROPONENT APPROVAL *(Name and Grade)*	6a. SIGNATURE	6b. DATE
Larry Antonich, GM-13	Larry Antonich	27 July 00

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. *(Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)*	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE *(Noise, accident potential, encroachment, etc.)*		X		
8. AIR QUALITY *(Emissions, attainment status, state implementation plan, etc.)*			X	
9. WATER RESOURCES *(Quality, quantity, source, etc.)*		X		
10. SAFETY AND OCCUPATIONAL HEALTH *(Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.)*	X			
11. HAZARDOUS MATERIALS/WASTE *(Use/storage/generation, solid waste, etc.)*		X		
12. BIOLOGICAL RESOURCES *(Wetlands/floodplains, flora, fauna, etc.)*		X		
13. CULTURAL RESOURCES *(Native American burial sites, archaeological, historical, etc.)*		X		
14. GEOLOGY AND SOILS *(Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)*		X		
15. SOCIOECONOMIC *(Employment/population projections, school and local fiscal impacts, etc.)*	X			
16. OTHER *(Potential impacts not addressed above.)*				

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17.
- [ ] PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; OR
- [X] PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

Malmstrom AFB is an attainment area under the Clean Air Act, so an air conformity determination is not required.

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION *(Name and Grade)*	19a. SIGNATURE	19b. DATE
Rudy Verzuh, GS-11 Environmental Engineer		07/27/0

Final

Environmental Assessment

Weapons and Munitions Maintenance and Storage Complex

Malmstrom Air Force Base, Montana

Prepared for:

U.S. Air Force

Headquarters Air Force Space Command

April 2001

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The United States Air Force Space Command proposes to upgrade the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. The purpose and need is to provide proper storage and handling of modern weapons systems currently maintained at Malmstrom AFB. The existing WMMSC is an aging facility that was built prior to the introduction of most modern weapons systems and consequently cannot efficiently store and handle these modern systems. Many of the older munitions storage buildings also have problems with water infiltration and flooding which restricts the use of the buildings and requires frequent costly repairs. As a result, the base must operate the facility with several restrictions on storage capability and handling in order to meet all current security and safety requirements, and must also spend an average of $1.3 million annually to keep the facility in an acceptable condition for its current function. Therefore, the Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements. The proposed facility design would incorporate enough flexibility to accommodate any foreseeable changes to the current base mission that might occur in the future.

Proposed Action

The Proposed Action is to upgrade the combined WMMSC on the existing site (Site 3). The existing WMMSC contains two components, the Weapons Storage Area (WSA) and the Munitions Storage Area (MSA). The upgraded complex will be "state of the art," incorporating lessons from similar projects and complying with all current guidelines and requirements for the storage and handling of munitions and weapons. Security for the weapons systems and safety of the facility will be given the highest priority in design. Weapons storage and maintenance areas would be provided in accordance with current Air Force recommendations.

The project would include demolition of seven buildings, upgrade of existing facilities, and construction of new facilities. To facilitate planning and design of the construction, an explosives hazard reduction inspection was conducted and identified 13 explosive storage and operating facilities currently in use at the WMMSC. There are four earth-covered magazines (Buildings (Bldg) 1823, 1824, 1827, and 1828), two segregated magazines (Bldgs 1830 and 1832), and five multi-cubicles (Bldgs 1870, 1871, 1872, 1873, and 1874). The remaining explosive-sited facilities consist of two maintenance and operating facilities (Bldgs 1869 and 1840), one administrative facility (Bldg 1835), and one reserve fire team facility (Bldg 1833). The proposed design will account for the amount of explosives that can be stored given the location and type of facilities, while minimizing the risk to personnel working in the area and other people that could be located within explosive safety areas.

New construction associated with the Proposed Action would include a new Security Entry Control Point (ECP) consisting of two buildings, one with an enclosed vehicle entrapment area and one with a pedestrian entrapment area; a new administration building with office space for 12 personnel; 4 new earth-covered magazines for nonconventional munitions; 6 new standard Munitions Storage Modules; and a vehicle storage shed. Proposed renovation includes replacing the heating, ventilation, and air conditioning system and lighting, and adding a second maintenance bay and an office area to Bldg 1869; installing new doors, drain trenches, and concrete topping slabs for drainage at Bldgs 1870 and 1874; and upgrading

existing storage igloos (Bldgs 1823, 1824, 1827, and 1828) with new doors and lightning protection.

Renovation of Bldg 1840 would include upgrading the heating, ventilation, and air conditioning system including controls, boilers, chillers, ductwork, pumps, piping, and connection to the Energy Monitoring Conservation System; lighting improvement; structural and non-structural seismic rehabilitation; renovating office spaces; removing asbestos; replacing the existing armory door; and modifying four bays within Bldg 1840.

The Proposed Action would also include improvement of drainage, renovation of two sanitary sewer systems and lift stations draining north and south of the WMMSC, development of a parking area outside the northwest corner of the WMMSC, construction of new and reconstruction of existing access roads, expansion of security fencing, and upgrading of site utilities (including communications, water, and natural gas). Bldgs 1837, 1864, 1867, 1868, 1871, 1872, and 1873 would be demolished.

The Proposed Action is programmed to start in Fiscal Year 2005 and continue for approximately 2 years. However, it is possible that funding could be authorized earlier. The total construction cost is estimated at $30.7 million. Funding, and consequently construction, could occur in two phases. Generally, Phase I would involve upgrading the MSA, while Phase II would involve upgrading the WSA.

Implementation Alternative

An Implementation Alternative would involve construction of separate, adjacent WSA and MSA areas of the WMMSC. There would be a separate ECP constructed for each of the two areas, a security fence (with alarm and monitoring systems) would be installed to divide the two areas, and an administration building would be constructed in both areas. Separate storage and handling facilities for munitions and weapons would enhance the security of the facility and would increase the safety of the facility operations. Much of the construction itemized as part of the Proposed Action would also occur under the Implementation Alternative. The total construction cost is estimated at $31.2 million. Funding and construction would also likely occur in phases, starting with the MSA.

No Action Alternative

Under the No Action Alternative, the WMMSC would be maintained in its current condition. Emergency repairs would continue as needed. Some concrete structures would sustain further damage due to water seepage. Lack of adequate maintenance facilities would continue, with personnel conducting maintenance in shifts to accommodate space limitations. The No Action Alternative would result in no new impacts.

Alternatives Considered but Eliminated

The Air Force considered but eliminated four alternatives from further evaluation. The first alternative, New Construction at Site 1, was eliminated based on requirements for construction in wetland areas and a drainage path directly to the Missouri River, acquisition of additional Federal land (no funds are currently allocated for acquiring off-base property), close proximity to an industrial park, and the prohibitive cost of new construction. The second alternative, New Construction at Site 2, wasn't evaluated further because of the cost of new construction and the restriction of the quantity-distance arcs that would overlap the

flightline area and prohibit future use of the runway by commercial aircraft. The third alternative eliminated, New Construction at Site 3, would have required demolition of existing facilities and construction of all new facilities, and would be far more costly than the renovations included in the Proposed Action (about $89 million versus $31 million). The fourth alternative, New Construction at Site 4, would have required acquisition of land from multiple property owners. Other problems with the fourth alternative include the prohibitive cost of new construction, the close proximity of the site to U.S. Highway 87, and a quantity-distance arc that would overlap or approach Highwood Road.

Impacts by Resource

The following resource areas were analyzed for potential environmental consequences associated with the Proposed Action, Implementation Alternative, and No Action Alternative.

Air Quality. The Proposed Action would have no significant adverse impacts on air quality from heavy equipment and earth-moving activities during demolition and construction. No significant air quality impacts would result from operation of the facilities. Impacts from the Implementation Alternative would also not be significant, but would be greater than those impacts generated from the Proposed Action. Under the No Action Alternative, emissions from repair activities would likely increase slightly over past levels as facilities would require more repairs in the future. Due to climatic conditions, however, air quality would not be noticeably affected, and no significant impacts would occur.

Geological Resources. Impacts to geological resources would result primarily from disturbance of the ground from construction (trenching or excavation) activities. These activities would affect a shallow layer of the underlying geology in some areas. Trenching, excavation, grading, and compaction during construction would directly impact topography and soils. The Proposed Action would result in about 16 acres being disturbed; impacts to soils and the underlying geology would not be significant. Impacts from the Implementation Alternative would be similar to those generated from the Proposed Action, but slightly greater; approximately 17 acres would be disturbed. Geological resources would not be significantly impacted under the No Action Alternative; minor disturbances could occur if excavation is required for continued repairs.

Water Resources. Direct impacts to water resources would result primarily from disturbing the ground during construction activities and from altering surface hydrology. Impacts to groundwater from excavation would not be significant. No adverse impact to bedrock aquifers would occur because of their extensive depth below the surficial aquifers. The shallow alluvial aquifers would not be significantly impacted. The slight decrease in recharge area would not significantly affect underlying aquifers. Short-term disturbances from construction activities during the Proposed Action could cause wind or water soil erosion; this could lead to increased sedimentation of nearby surface waters. Implementing best management practices would reduce the potential for erosion and sedimentation. The quality of groundwater and surface water would not be significantly affected. There would be no impacts to floodplains. Under the Implementation Alternative, impacts from construction would be somewhat more adverse than under the Proposed Action, but not significant. If the No Action Alternative is selected, there would be no change in water resources; occasional ponding of surface water at the WMMSC would continue.

Biological Resources. Impacts to biological resources on Malmstrom AFB would be short-term and would result primarily from activities associated with the upgrade and construction

of the WMMSC. Generally, these activities would occur within a portion of the base that has already been disturbed by construction activity, such as minor digging, grading, stockpiling soil, and compaction from construction equipment. Construction activities would minimally affect both vegetation and wildlife on Malmstrom AFB, but with no significant impacts. No critical habitat or threatened or endangered species would be affected by the Proposed Action. No wetlands would be filled as a result of the construction activities; no Section 404 permit would be required. Silt barriers would be placed to protect wetlands from adverse environmental impacts from water runoff and erosion during construction activities. Minimal indirect disturbance of wetlands caused by runoff would occur but would not be significant. Under the Implementation Alternative, impacts to biological resources would be similar to those under the Proposed Action. Activities under the Implementation Alternative (such as additional construction) would have a short-term, but not significant impact, from the displacement of wildlife and replacement of vegetation (although there would be slightly more disturbance than under the Proposed Action). No critical habitat or threatened or endangered species would be affected by the Implementation Alternative, and no wetlands would be filled. Under the No Action Alternative, there would be no change to the biological environment on Malmstrom AFB; minor disturbances to vegetation and wildlife would occur if excavation was required for ongoing facility maintenance.

Cultural Resources. There are no known cultural resources within the area proposed for demolition, upgrade, or construction of the WMMSC as part of the Proposed Action or Implementation Alternative. Construction activities would occur at previously disturbed areas; therefore, impacts on archaeological resources are unlikely. No buildings to be demolished are listed or eligible for listing on the National Register of Historic Places. There would be no impacts to cultural resources from the No Action Alternative.

Noise. The impacts on the noise environment are related to the magnitude and duration of the noise levels generated during demolition and construction and the proximity of noise-sensitive receptors to the noise source. Construction and traffic associated with the Proposed Action would not significantly influence the noise environment because the noise generated would be intermittent and occur during daytime hours. Following construction activities , the noise environment in the area of the WMMSC would return to pre-construction levels; no long-term changes to the noise environment would occur. Due to additional construction, impacts under the Implementation Alternative would be slightly greater than the Proposed Action, but still not significant. There would be no impacts under the No Action Alternative; noise levels would remain the same.

Socioeconomics. Under the Proposed Action or the Implementation Alternative, construction expenditures for labor and materials would provide short-term beneficial impacts to employment and income in the region of influence, Cascade County. Any population impacts would be short-term and not significant. No significant long-term impacts would occur to the local economy. There would be no impacts to socioeconomic resources under the No Action Alternative.

Environmental Justice. Because there are no low-income or minority populations near the WMMSC site, there would be no environmental justice impacts under the Proposed Action, Implementation Alternative, or the No Action Alternative.

Transportation. Parts of the road network at Malmstrom AFB would be temporarily affected by the Proposed Action during construction activities. Short-term, but not significant, impacts would result primarily from temporary disturbances from construction

equipment and increased traffic from construction worker vehicles and dump trucks. After construction activities, the traffic levels in the area of the WMMSC would return to pre-construction levels; there would be no long-term impacts. Impacts from the Implementation Alternative would be similar to those under the Proposed Action, and would not be significant. Helicopter flights at Malmstrom AFB would not be affected under either the Proposed Action or the Implementation Alternative. The No Action Alternative would have no impact on the transportation infrastructure.

Environmental Programs. The Proposed Action would not have significant adverse impacts to human health or safety, radiation safety, asbestos, lead-based paint (LBP), polychlorinated biphenyls (PCB), hazardous materials and waste, the Installation Restoration Program (IRP), solid waste, wastewater, and storm water. There would be beneficial impacts from the removal of asbestos, LBP, and PCBs from facilities and from the upgrade of wastewater and storm water management systems. The Implementation Alternative would result in short-term and long-term impacts similar to those under the Proposed Action, and there would be no significant impacts.

Under the No Action Alternative, there would continue to be adverse impacts to environmental programs related to the maintenance of aging and deteriorating facilities. Existing restrictions on weapons storage would continue if the upgrade is not completed. Renovation and upgrade of the WMMSC facilities would not occur, and any asbestos and LBP present in the facilities would remain. Adverse impacts would occur if wastewater system backup and storm water flooding problems continued, and some concrete structures would sustain further damage due to water seepage.

Cumulative impacts are those changes to the physical, biological, and socioeconomic environments which would result from the Proposed Action (or Alternatives) in combination with reasonably foreseeable future actions. There would be no significant cumulative impacts from the Proposed Action or Implementation Alternative. The short-term increases in air emissions, and the non-significant impacts predicted for other resource areas, would not be significant when considered cumulatively with other ongoing and planned future activities at Malmstrom AFB and the nearby off-base area.

This page intentionally left blank.

TABLE OF CONTENTS

TABLE OF CONTENTS

APPENDICES:

LIST OF FIGURES

LIST OF TABLES

Appendix Tables:

This page intentionally left blank.

ACRONYMS AND ABBREVIATIONS

ACRONYMS/ABBREVIATIONS

ACM	asbestos-containing material
AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFOSH	Air Force Occupational Safety and Health
AFSPC	Air Force Space Command
AICUZ	Air Installation Compatible Use Zone
ARM	*Administrative Rules of Montana*
ARPA	Archaeological Resources Protection Act
Bldg	building
CAA	*Clean Air Act*
CCTV	Closed Circuit Television
CE	Civil Engineering
CEQ	Council on Environmental Quality
CES	Civil Engineering Squadron
CERCLA	*Comprehensive Environmental Response, Compensation and Liability Act*
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	*Clean Water Act*
dB	decibel
dBA	"A-weighted" decibel
DCE	dichloroethene
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
ECP	Entry Control Point
EED	Electro-Explosive Device
EHR	explosives hazard reduction
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EMCS	Energy Monitoring Conservation System
EO	Executive Order
EPCRA	*Emergency Planning and Community Right-to-Know Act*
ESA	*Endangered Species Act*
FH	family housing
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
ft	foot
FY	Fiscal Year

H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HQ	Headquarters
HVAC	heating, ventilation, and air conditioning
ICBM	Intercontinental Ballistic Missile
IRP	Installation Restoration Program
km	kilometer
LBP	lead-based paint
L_{dn}	day-night average sound level
L_{eq}	equivalent sound level
LF	launch facility
LLRW	low-level radioactive waste
MAAQS	Montana Ambient Air Quality Standards
MCA	*Montana Code Annotated*
MCL	maximum contaminant level
MDEQ	Montana Department of Environmental Quality
mg/L	milligrams per liter
MGD	million gallons per day
MM III	Minuteman III
MMH	monomethyl hydrazine
MPDES	Montana Pollution Discharge Eliminator System
mrem	millirems
MS	Missile Squadron
MSA	Metropolitan Statistical Area
MSM	Munitions Storage Modules
NAAQS	National Ambient Air Quality Standards
NEPA	*National Environmental Policy Act*
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFRAP	No Further Response Action Planned
NHPA	*National Historic Preservation Act*
NO	nitrogen oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	polychlorinated biphenyl
PCI	per capita income
PM_{10}	particulate matter equal to or less than 10 microns in diameter

$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
POL	petroleum, oils, and lubricants
ppm	parts per million
PSD	Prevention of Significant Deterioration
RACM	Regulated Asbestos-containing Materials
RCRA	*Resource Conservation and Recovery Act*
ROI	region of influence
SAF/MIQ	Deputy Assistant Secretary of the Air Force for Environment, Safety, and Occupational Health
SARA	*Superfund Amendments and Reauthorization Act*
SO_2	sulfur dioxide
SW	Space Wing
TCE	trichloroethylene
tpy	tons per year
TSS	total suspended sediments
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USBC	U.S. Bureau of the Census
U.S.C	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VIDS	Visual Imagery Intrusion Detection System
VOC	volatile organic compound
WMMSC	Weapons and Munitions Maintenance and Storage Complex
WSA	weapons storage area

This page intentionally left blank.

CHAPTER 1

PURPOSE AND NEED FOR ACTION

1. PURPOSE OF AND NEED FOR ACTION

The United States Air Force Space Command (AFSPC) proposes to upgrade the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. The *National Environmental Policy Act* (NEPA) of 1969, as amended, requires federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental analysis. The Air Force environmental impact assessment process is accomplished through the adherence to the procedures set forth in CEQ regulations (40 *Code of Federal Regulations* (CFR) §1500-1508) and 32 CFR 989 (Air Force Environmental Impact Analysis Process). These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation, designed to ensure deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. This environmental assessment (EA) provides an analysis of potential environmental consequences that could result from the implementation of the Proposed Action or an alternative.

1.1 PURPOSE OF AND NEED FOR ACTION

The purpose and need for the Proposed Action is to provide proper storage and handling of the modern weapons systems currently maintained at Malmstrom AFB. The existing WMMSC is an aging facility that was built prior to the introduction of most modern weapons systems and consequently cannot efficiently store and handle these modern systems. Many of the older munitions storage buildings also have problems with water infiltration and flooding, which restricts the use of the buildings and requires frequent costly repairs. As a result, the base must operate the facility with several restrictions on storage capability and handling in order to meet all current security and safety requirements, and must also spend an average of $1.3 million annually to keep the facility in an acceptable condition for its current function. Therefore, the Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements. The proposed facility design would incorporate enough flexibility to accommodate any foreseeable changes to the current base mission that might occur in the future. The design must also be coordinated with the Base Comprehensive Plan and anticipated future use plans. The following criteria were used to evaluate the Proposed Action and various alternatives.

- The location should be within the base boundary to ensure security.
- For safety and security reasons, quantity-distance arcs should not overlap populated areas, high density public traffic routes (10,000 vehicles or more per day) or joint DoD/non-DoD runways, taxiways, or passenger terminals, and should not impact areas planned for development. Air Force Manual 91-201, *Explosive Safety Standard,* identifies hazards and states safety precautions and

rules for working with explosives. Quantity-distance zones are based on protection requirements from potential explosive sites to exposed sites.

- No property should have to be acquired by the Air Force. There is no funding allocated for purchasing off-base property near Malmstrom AFB to support the proposed project. To obtain such funds, Malmstrom AFB would need to modify their Program Objective Memorandum (a document that identifies total program requirements beyond the next fiscal year) or obtain funding through special legislation. Either option would be a lengthy process, during which time the current WMMSC facilities would further degrade.
- The location must be within limits on new construction.
- The location should provide sufficient space requirements for security, administrative, and maintenance activities.

1.2 DECISIONS TO BE MADE

The analysis in this EA evaluates the potential environmental consequences of constructing and operating the WMMSC. Based on this information, the Chairman of the Environmental Protection Committee at Malmstrom AFB will determine whether to issue a Finding of No Significant Impact (FONSI) or to prepare an Environmental Impact Statement (EIS). As required by NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed project, and be available to inform decision makers of the potential environmental impacts of selecting the Proposed Action, Implementation Alternative, or No Action Alternative.

1.3 LOCATION OF PROPOSED ACTION

Malmstrom AFB is located in Cascade County in west central Montana, adjacent to the eastern edge of the city of Great Falls, as shown in Figure 1.3-1. Interstate 15 passes along the western edge of Great Falls, while U.S. Highway 87/89 passes along the southern edge of the base and the U.S. Highway 87 Bypass goes along the western edge of the base. The Missouri River flows through the city of Great Falls and is about one mile north of the base. The base is located on the Missouri Plateau, within the physiographic region known as the Great Plains. The eastern edge of the Rocky Mountains is approximately 40 miles to the west, with the Continental Divide about 50 miles west of Great Falls. Helena, the state capital, is 80 miles to the southwest. The Canadian border lies about 100 miles to the north.

1.4 ORGANIZATION OF THIS ENVIRONMENTAL ASSESSMENT

This EA evaluates the Proposed Action, an Implementation Alternative, and the No Action Alternative. The approach used for this EA is to identify and describe the Proposed Action and alternatives in Chapter 2. Chapter 3, Affected Environment, describes the environment on and around Malmstrom AFB that could be affected by the Proposed Action or an alternative. Chapter 4, Environmental Consequences, addresses potential impacts of the Proposed Action, or Implementation and No Action Alternatives, to the physical, biological, and human environs on Malmstrom AFB; potential cumulative

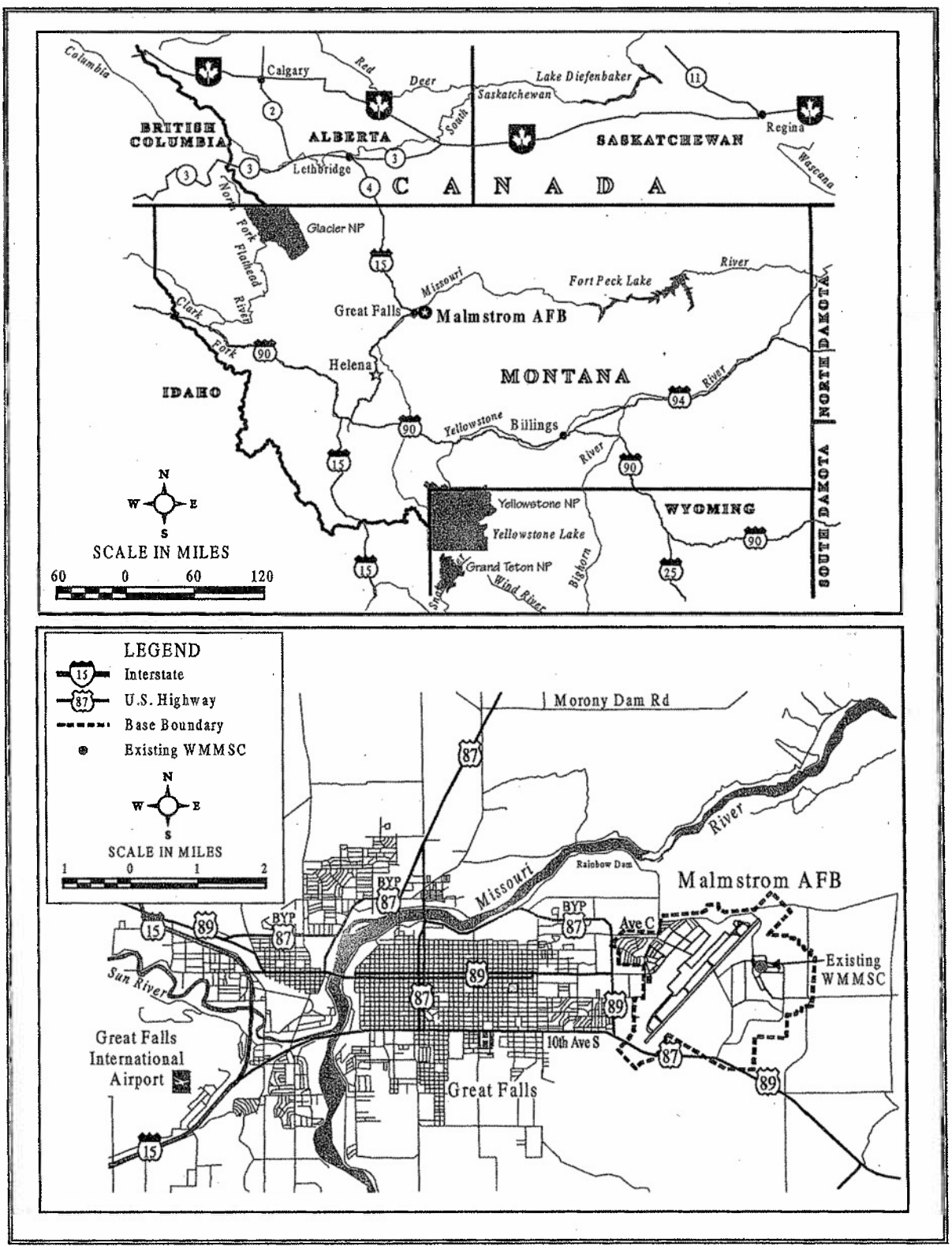


Figure 1.3-1 Location and Vicinity of Malmstrom AFB, Montana

impacts are also evaluated. Chapter 5 lists all the reference material used to prepare the EA, and Chapter 6 is the list of preparers. Appendix A includes correspondence with agencies responsible for managing various environmental resources, and Appendix B contains air quality information.

1.5 SCOPING AND CONSULTATION

The scoping for this EA consisted of discussing relevant issues pertaining to the action planned at Malmstrom AFB. Discussions occurred among representatives of the Headquarters Air Force Center for Environmental Excellence (HQ AFCEE), Malmstrom AFB personnel (Civil Engineering, Community Planner, Natural and Cultural Resources), AFSPC, and the preparers of the document. The input from these and other sources was sought and considered in preparing this EA. In addition, letters requesting comments on possible issues of concern related to the Proposed Action and alternatives were sent to agencies with pertinent resource responsibilities. Appendix A contains a list of the agencies and copies of the scoping letters sent to them, along with agency responses. As is typical for this level of environmental documentation, no formal public scoping meetings were conducted for this Proposed Action.

Environmental issues were identified during the scoping process for this Proposed Action. The issues addressed in this document include potential effects in the areas of the natural environment (air, geology, water, biology, wetlands, noise, and cultural resources); the local community (socioeconomics, environmental justice, and transportation); and relevant environmental programs (health and safety; asbestos; lead-based paint; hazardous materials and waste management; the Installation Restoration Program; solid waste, wastewater, and storm water). Under the Proposed Action or Implementation Alternative, the WMMSC project would occur on land that is already used for similar purposes and would involve structures that are similar to those in place. For these reasons, impacts to land use and aesthetics are not addressed in this EA. In addition, the EA examines the cumulative effects of the project when considered with other projects.

1.6 PUBLIC REVIEW PROCESS

An advertisement was published in the Great Falls Tribune on February 27, 2001 to announce the availability of the Final Draft EA and Draft FONSI for public review. The comment period extended from February 27 to March 29, 2001. Appendix A contains a copy of the Notice of Availability printed in the newspaper, copies of the letters that were sent to agencies with the Draft EA and Final Draft EA, and copies of comment letters submitted by reviewers. One comment letter was received on the Draft EA and three letters were received on the Final Draft EA. No changes to the EA were required based on the comment letters.

1.7 LAWS AND REGULATIONS

A brief summary of federal and state laws and regulations that may be applicable to the Proposed Action and alternatives is provided in the following paragraphs.

1.7.1 Environmental Policy

The *National Environmental Policy Act* of 1969 [42 United States Code (U.S.C.) §4321 *et seq.*] establishes national policy, sets goals, and provides the means to prevent or eliminate damage to the environment. These NEPA procedures ensure that information about environmental impacts is available to public officials and citizens before decisions are made on major federal actions that may significantly affect the environment. The President's CEQ regulations [40 *Code of Federal Regulations* (CFR) 1500-1508] implement the procedural provisions of NEPA.

Executive Order (EO) 11514, *Protection and Enhancement of Environmental Quality*, as amended by EO 11991, directs the Federal Government to act or provide guidance on how to implement particular requirements for protecting and enhancing the quality of the nation's environment.

EO 12372, *Intergovernmental Review of Federal Programs*, provides for opportunities for consultation by state and local governments on proposed federal developments.

The *Montana Environmental Policy Act* (Title 75, Chap 1, part 1, *Montana Code Annotated* (MCA)) is a state law that directs the Montana Department of Environmental Quality (MDEQ) to disclose effects of state actions on state, federal, and private lands to the public and officials making decisions concerning the environmental analysis process.

The *Air Force Environmental Impact Analysis Process* (EIAP) (32 CFR 989) establishes the procedures to implement the CEQ regulations promulgated pursuant to NEPA.

1.7.2 Air Quality

The *Clean Air Act* (CAA) [42 U.S.C. §7401 *et seq.*, as amended] establishes as federal policy the protection and enhancement of the quality of the Nation's air resources to protect human health and the environment. The CAA sets national primary and secondary ambient air quality standards as a framework for air pollution control.

The *Clean Air Act of Montana* (Title 75, Chap 2, part 1, MCA) sets forth requirements to achieve and maintain levels of air quality to protect human health and safety, to prevent injury to plant and animal life and property, and to provide a coordinated statewide program of air pollution prevention, abatement, and control.

AFI 32-7040, *Air Quality Compliance*, instructs the Air Force on compliance with the CAA and federal, state, and local regulations.

1.7.3 Water Quality

The *Clean Water Act* (CWA) [33 U.S.C. §1251 *et seq.*, as amended], in order to restore and maintain the chemical, physical, and biological integrity of the water, establishes

federal limits on the amounts of specific pollutants that can be discharged to surface waters, using the National Pollution Discharge Elimination System (NPDES). A new NPDES permit, or modification to an existing permit, would be required for changes from the present parameters in the quality or quantity of storm water runoff. Malmstrom AFB has a Permit to Discharge Industrial Wastewater to the City of Great Falls Wastewater Treatment Plant.

The *Montana Water Quality Act* (Title 75, Chap 5, part 1, MCA) serves to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses. The policy also provides a comprehensive program for the prevention, abatement, and control of water pollution.

The *Montana Groundwater Assessment Act* (Title 85, Chap 2, part 9, MCA) establishes a program to assess and monitor the state's groundwaters, in order to improve the quality of groundwater management, protection, and development decisions within the public and private sectors.

AFI 32-7041, *Water Quality Compliance*, instructs the Air Force on how to assess, attain, and sustain compliance with the CWA and federal, state, and local environmental regulations.

1.7.4 Biological Resources

The *Endangered Species Act* (ESA) [16 U.S.C. §1531-1543, *et seq.*] requires federal agencies that authorize, fund, or carry out actions to avoid jeopardizing the continued existence of threatened or endangered species and to avoid destroying or adversely modifying their critical habitat. Federal agencies must evaluate the effects of their actions on threatened or endangered species of fish, wildlife, and plants, and their critical habitats, and take steps to conserve and protect these species. All potentially adverse impacts to threatened and endangered species must be avoided or mitigated.

AFI 32-7064, *Integrated Natural Resource Management*, provides the Air Force with guidance on compliance with the ESA and with federal, state, and local environmental regulations.

1.7.5 Wetlands and Floodplains

Section 404 of the CWA, administered by the U.S. Army Corps of Engineers (USACE), prohibits the discharge of dredged or fill materials into waters of the United States, including wetlands, without a permit issued by the USACE. The type of permit (nationwide or individual) required depends on the acreage of wetland filled, the type of construction project, the extent of wetland avoidance, the type and extent of wetland mitigation, and the presence or absence of threatened or endangered species.

EO 11990, *Protection of Wetlands*, requires federal agencies to take action to avoid, to the extent practicable, the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. The intent of EO 11990 is to

avoid direct or indirect construction in wetlands if a feasible alternative is available. All federal and federally supported activities and projects must comply with EO 11990. If wetlands would be impacted, a Finding of No Practicable Alternative (FONPA) must be prepared and submitted to HQ USAF/CEV, in accordance with AFI 32-7061, for review and approval by the Deputy Assistant Secretary of the Air Force for Environment, Safety, and Occupational Health (SAF/MIQ) prior to implementing the impacting activity.

EO 11988, *Floodplain Management*, requires federal agencies to evaluate the potential effects of actions on floodplains and avoid adverse floodplain impacts wherever possible.

The *Montana Floodplain and Floodway Management Act* (Title 76, Chap 5, part 1, MCA) authorizes the Montana Department of Natural Resources and Conservation to delineate the 100 year floodplain and floodway of every watercourse in the state and to restrict use of these designated areas to those uses that will not seriously damage or present a hazard to life, if flooded.

AFI 32-7064, *Integrated Natural Resources Management*, provides the Air Force with guidance for no net loss of wetlands on Air Force installations.

1.7.6 Noise

The *Noise Control Act* of 1972 [42 U.S.C. §4901 *et seq.*, Public Law 92-574] establishes a policy to promote an environment free from noise harmful to the health or welfare of people. Federal agencies must also comply with state and local requirements for the control and abatement of environmental noise.

1.7.7 Cultural Resources

The *National Historic Preservation Act* (NHPA) of 1966 [16 U.S.C. §470 *et seq.*, as amended] requires federal agencies to determine the effect of their actions on cultural resources and take certain steps to ensure these resources are located, identified, evaluated, and protected.

The *Archaeological Resources Protection Act* (ARPA) [16 U.S.C. §470a-11 *et seq.*, as amended] protects archeological resources on federal lands. If archaeological resources are discovered that may be disturbed during site activities, the Act requires permits for excavating and removing the resource.

The *Native American Graves Protection and Repatriation Act* of 1990 [Public Law 101-601; 25 U.S.C. §3001-3013 *et seq.*] prohibits the intentional removal of Native American cultural items from Federal or tribal lands except under an ARPA permit and in consultation with the appropriate Native American groups.

AFI 32-7065, *Cultural Resource Management*, provides the Air Force with guidance on compliance with the NHPA, ARPA, and applicable federal, state, and local regulations.

1.7.8 Management of Hazardous Materials and Hazardous Waste

The *Resource Conservation and Recovery Act* (RCRA) of 1976 (42 U.S.C. §6901 *et seq.*), as amended, sets the requirements for reduction, control, management, and disposal of solid and hazardous waste.

The *Montana Solid Waste Management Act* (Title 75, Chap 10, part 2, MCA) provides guidance to control solid waste management systems for the protection of public health and safety and to conserve natural resources whenever possible.

The *Montana Hazardous Waste Act* (Title 75, Chap 10, part 4, MCA) addresses the protection of public health and safety, the health of living organisms, and the environment from the effects of the improper management of hazardous wastes and used oil. It also provides for establishing a program of regulation over used oil and the generation, storage, transportation, treatment, and disposal of hazardous wastes pursuant to *Resource Conservation and Recovery Act* guidelines.

AFI 32-7042, *Solid and Hazardous Waste Compliance*, provides guidance to the Air Force on compliance with RCRA and applicable federal, state, and local regulations.

The *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) of 1980, as amended by the *Superfund Amendments and Reauthorization Act* (SARA) [42 U.S.C. §9601 *et seq.*], provides for funding, enforcement, response, and liability for the release or threatened release of hazardous substances into the environment.

The Installation Restoration Program (IRP) is a Department of Defense (DoD) program designed to identify, confirm, quantify, and remediate suspected problems associated with past hazardous material disposal sites on DoD installations. The Defense Environmental Restoration Program (10 U.S.C. §2701 *et seq.*) is the legal mandate for the IRP.

AFI 32-7020, *Environmental Restoration Program*, provides the Air Force with guidance on compliance with CERCLA, and federal, state, and local regulations.

The *Emergency Planning and Community Right-to-Know Act* (EPCRA) of 1986 (42 U.S.C. §11001), sets forth the requirements for emergency planning, including timely notification and response to a release of hazardous substances.

The *Toxic Substances Control Act* (TSCA) establishes requirements (40 CFR 761) for the manufacture, processing, distribution in commerce, use, cleanup, storage, and disposal of polychlorinated biphenyls (PCB).

The *Occupational Safety and Health Act* (OSHA) of 1970 [29 U.S.C. §651 *et seq*]. provides regulations to protect the health and safety of employees in the workplace.

1.7.9 Environmental Justice

EO 12989, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, directs federal agencies to identify and address disproportionately high and adverse human or environmental impacts of federal actions on the aforementioned populations.

1.7.10 Transportation

The *Hazardous Materials Transportation Act* of 1975 [49 U.S.C. §1761] provides for the protection of public health from the risks of transporting hazardous materials (explosives, flammable liquids and solids, combustible materials, corrosives, and compressed gases). The transportation of all hazardous materials must meet the requirements of this act.

1.8 PERMITTING REQUIREMENTS

Five or more acres would be disturbed by the proposed construction. Therefore, it would be necessary to obtain a permit under NPDES. If any wetland areas were to be filled, it would be necessary to obtain a permit from the U.S. Army Corps of Engineers (USACE); however, current plans do not involve filling of any wetlands.

A permit may also be required from the State of Montana for the waste leaching system that would be part of the proposed construction.

This page intentionally left blank.

CHAPTER 2

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This section of the environmental assessment (EA) describes the Proposed Action, an Implementation Alternative, alternatives considered but eliminated from analysis, and the No Action Alternative. The Proposed Action includes all activities related to the construction of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB). An Implementation Alternative is also discussed, along with the No Action Alternative. Four alternatives to the Proposed Action were considered but eliminated from further analysis; these are discussed in Section 2.3. The chapter concludes with reasonably foreseeable cumulative actions and a table summarizing potential impacts and their significance, based on the resource-specific analyses in Chapter 4.

2.1. DESCRIPTION OF PROPOSED ACTION

The Proposed Action is to upgrade the combined WMMSC on the existing site (Site 3). Figure 2.1-1 shows a map of the base, including the location of the current WMMSC location. The figure also shows other site locations that were considered for hosting a new WMMSC. Discussion of these sites and the reason for their elimination from further evaluation is provided in Section 2.3 of this document.

The existing WMMSC contains two components, the Weapons Storage Area (WSA) and the Munitions Storage Area (MSA). The upgraded complex will be "state of the art," incorporating lessons from similar projects and complying with all current guidelines and requirements for the storage and handling of munitions and weapons. Security for the weapons systems and safety of the facility will be given the highest priority in design. Weapons storage and maintenance areas would be constructed in accordance with current installation, Air Force, and Department of Defense (DoD) guidance.

The project would include demolition, upgrade of existing facilities, and construction of new facilities. Figure 2.1-2 shows the existing facilities, and indicates which facilities would be demolished and where new facilities would be constructed. To facilitate planning and design of the construction, an explosives hazard reduction (EHR) inspection was conducted. Figure 2.1-2 also identifies proposed facilities with a prefix of "EHR" to denote the consideration of EHR specifications. The WMMSC has a total of 13 explosive storage and operating facilities currently in use. There are four earth-covered magazines (Buildings (Bldg) 1823, 1824, 1827, and 1828), two segregated magazines (Bldgs 1830 and 1832), and five multi-cubicles (Bldgs 1870, 1871, 1872, 1873, and 1874). The remaining explosive-sited facilities consist of two maintenance and operating facilities (Bldgs 1869 and 1840), one administrative facility (Bldg 1835), and one reserve fire team facility (Bldg 1833). The proposed design will account for the amount of explosives that can be stored given the location and type of facilities, while minimizing the risk to personnel working in the area and other people that could be located within explosive safety areas.

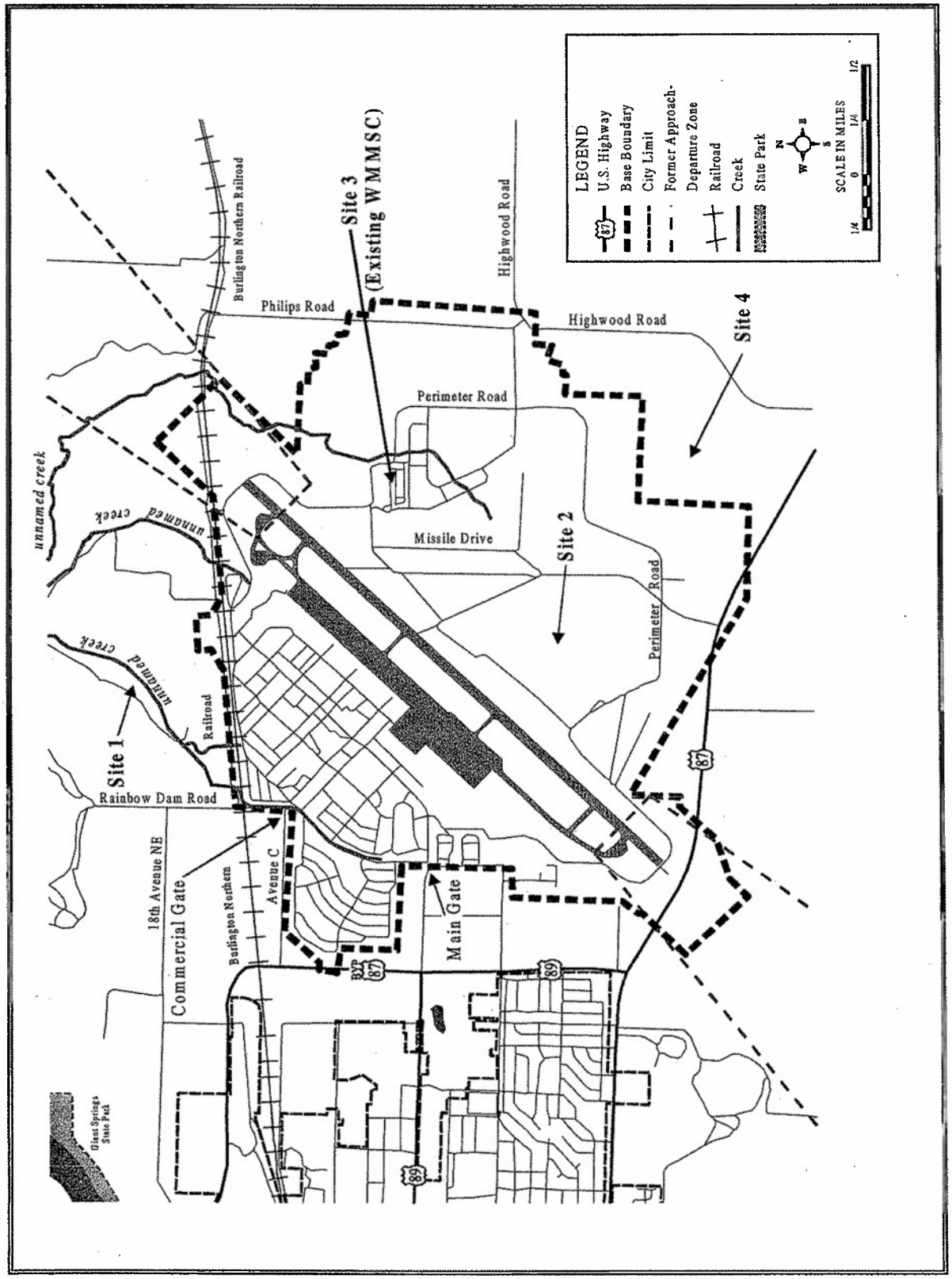


Figure 2.1-1 Map of Malmstrom AFB, MT

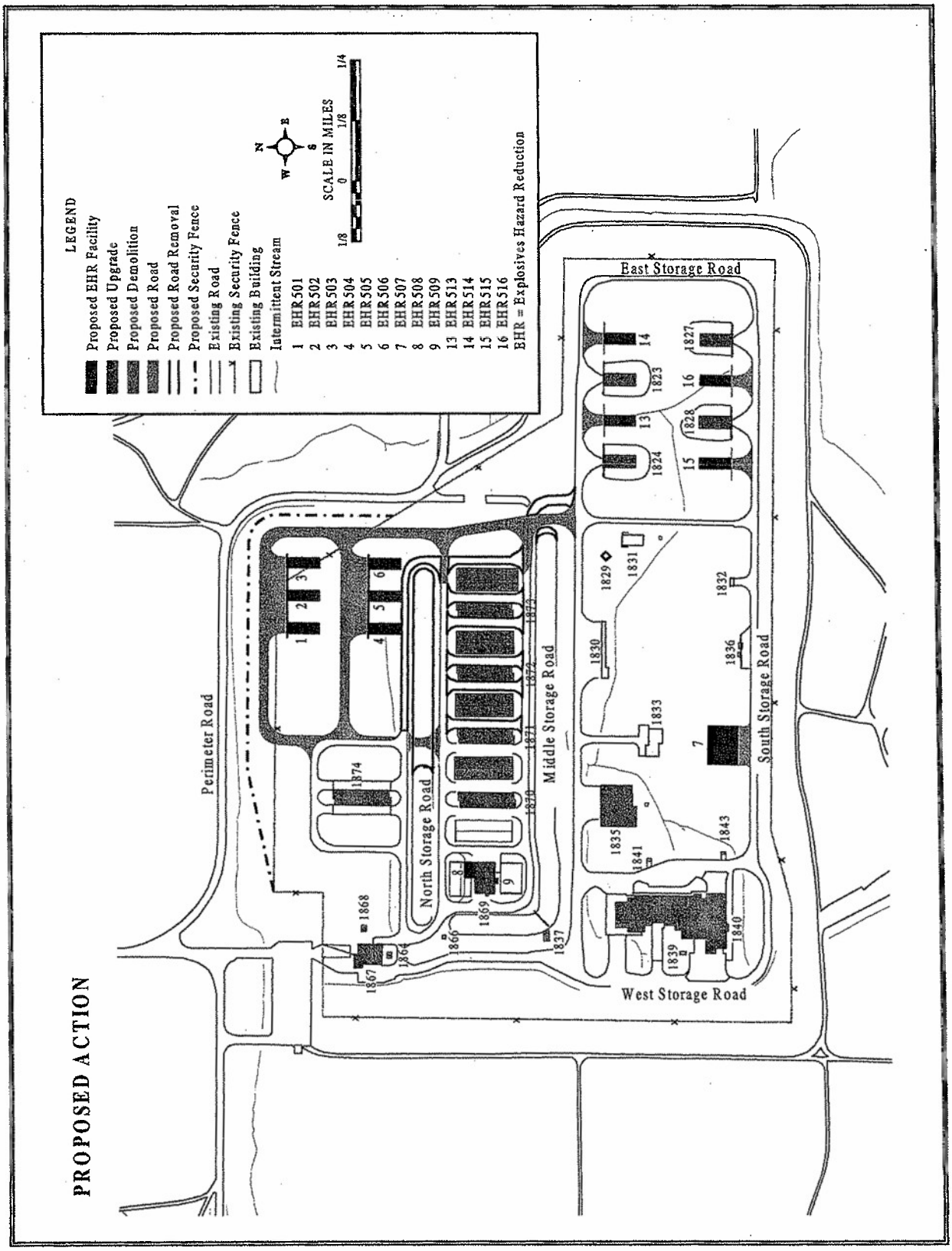


Figure 2.1-2. Proposed Action: Combined MSA and WSA

The Proposed Action would include the following activities:

- Construction of a new Security Entry Control Point (ECP) with a vehicle entrapment area. The ECP would consist of two buildings:
  - One building would have an enclosed vehicle entrapment area large enough for weapons transport vehicles. The vehicle entrapment area must have a means of containing vehicles and preventing vehicles from access (i.e. hydraulically operated barriers), a pit or Closed Circuit Television (CCTV) for inspecting the underside of vehicles, a platform for inspecting the tops of vehicles, and a separate area for searching vehicle personnel outside the view of the vehicle inspection area. Other security measures such as airborne assault barriers may also be required.
  - The second building (similar to Bldg 1867) would have a pedestrian entrapment area, an alarm/Visual Imagery Intrusion Detection System (VIDS) room, a training area, and personnel support areas (e.g., restrooms and break room).
- Construction of an MSA administration building, which would include office space for 12 personnel, a conference room, and personnel support areas.
- Construction of six new standard Munitions Storage Modules (MSM) (Proposed Bldgs EHR501 through 506) and a loading area with dock.
- Construction of four new earth-covered magazines (Proposed Facilities EHR513 through 516) for nonconventional munitions. These may be funded as a future project, or temporary vehicle parking pads may be constructed in the interim.
- Construction of a Proposed Vehicle Storage Shed (Facility EHR507).
- Demolition of the existing ECP (Bldg 1867).
- Demolition of the existing Bldg 1864, and relocation of its transformer equipment into a hardened transformer building in the MSA.
- Demolition of the existing Bldg 1837, and relocation of its transformer equipment into a hardened transformer building in the WSA.
- Demolition of Bldgs 1871, 1872, and 1873.
- Demolition of Bldg 1868 and its equipment relocated to Bldg 1867.
- Renovation of Bldgs 1870 and 1874 to install new doors, drain trenches, and concrete topping slabs for drainage.
- Renovation of Bldg 1869 to include replacing the heating, ventilation, and air conditioning system (HVAC) and lighting, connecting to the Energy Monitoring Conservation System (EMCS), adding a second maintenance bay (Proposed Facility EHR508), adding an office area (Proposed Facility EHR509), seismically rehabilitating the existing building.
- Seismically rehabilitating and upgrading the existing storage igloos (Bldgs 1823, 1824, 1827, and 1828) with new doors and lightning protection.
- Upgrade of Bldg 1840 HVAC including controls, boilers, chillers, ductwork, pumps, piping, and connection to the EMCS, lighting improvement, structural and non-structural seismic rehabilitation, renovating office spaces, removing asbestos, and replacing the existing armory door.

- Modification of service bays in Bldg 1840 as follows:
  - Bay 1 requires replacement of the existing door.
  - Bay 2 requires removal of the existing roof, raising the walls and crane rails approximately 20 feet, and constructing a new roof. A door would be replaced with reinforced concrete.
  - Bay 5 requires the construction of an Electro-Explosive Device (EED) test cell and bay expansion to the east.
  - Bay 6 and the adjacent mechanical room requires removal of the existing washrack equipment.
- Removal and reuse of berms in selected locations.
- Improvement of drainage, renovation of two sanitary sewer systems and lift stations draining north and south of the WMMSC (this includes new septic tanks and drain fields), development of a parking area outside the northwest corner of the WMMSC, construction of new and reconstruction of existing access roads, expansion of security fencing, and upgrading of site utilities (including communications, water, and natural gas).

The Proposed Action is programmed to start in Fiscal Year (FY) 2005 and continue for approximately 2 years. However, it is possible that funding could be authorized earlier. The total construction cost is estimated at $30.7 million. Funding, and consequently construction, could occur in two phases. Phase I would primarily involve an upgrade of the MSA, while Phase II would primarily involve an upgrade of the WSA.

2.2. DESCRIPTION OF ALTERNATIVES

In addition to the Proposed Action, this EA evaluates the impact of the Implementation Alternative and the No Action Alternative. These alternatives are discussed below, along with four alternatives that were considered but eliminated from further analysis.

2.2.1. Implementation Alternative

Within the Proposed Action, there is one implementation option. Under this option, there would be separate, adjacent WSA and MSA areas of the WMMSC (see Figure 2.2-1). There would be a separate ECP constructed for each of the two areas, a security fence (with alarm and monitoring systems) would be installed to divide the two areas, and an administration building would be constructed in each area. Separate storage and handling facilities for different types of munitions (i.e., munitions and weapons) would enhance the security of the facility and would increase the safety of the facility operations.

Much of the construction itemized as part of the Proposed Action would also occur under the Implementation Alternative, as shown below. Funding and construction would also likely occur in phases, starting with the MSA. The total cost is estimated at $31.2 million.

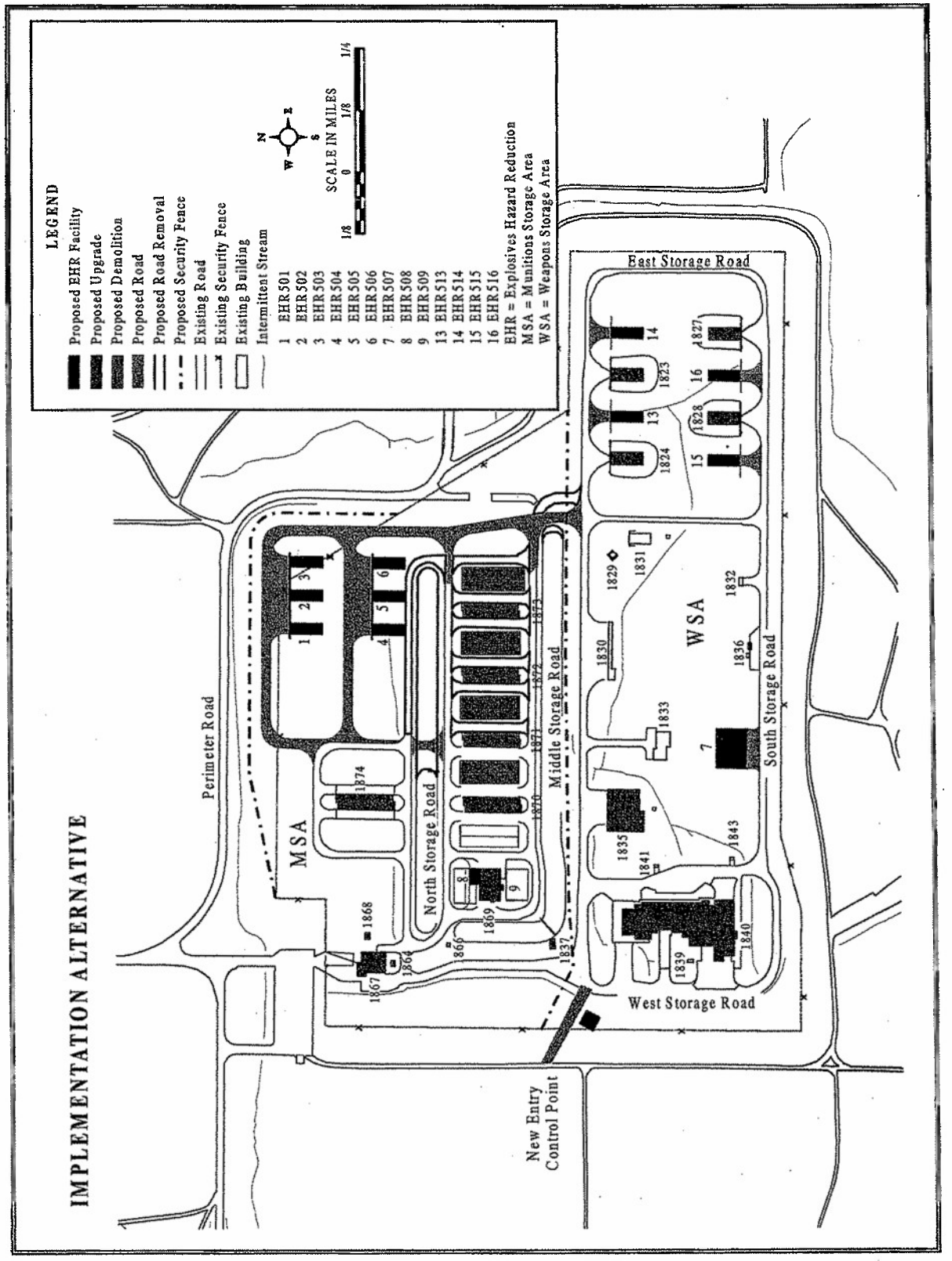


Figure 2.2-1. Implementation Alternative: Separate MSA and WSA

The Implementation Alternative would include the following activities:

- Construction of new Security ECP, with vehicle entrapment areas, for both the MSA and the WSA. Each ECP would consist of two buildings:
  - One building would have an enclosed vehicle entrapment area large enough for weapons transport vehicles. The vehicle entrapment area must have a means of containing vehicles and preventing vehicles from access (i.e. hydraulically operated barriers), a pit or CCTV for inspecting the underside of vehicles, a platform for inspecting the tops of vehicles, and a separate area for searching vehicle personnel outside the view of the vehicle inspection area. Other security measures such as airborne assault barriers may also be required.
  - The second building (similar to Bldg 1867) would have a pedestrian entrapment area, an alarm/VIDS room, a training area, and personnel support areas (e.g., restrooms and break room).
- Construction of new administration buildings for both the MSA and the WSA. Each building would include office space for 12 personnel, a conference room, and personnel support areas.
- Construction of a fence between the MSA and the WSA.
- Construction of six new standard MSM (Proposed Bldgs EHR501 through 506) and a loading area with dock.
- Construction of four new earth-covered magazines (Proposed Facilities EHR513 through 516) for nonconventional munitions. These may be funded as a future project, or temporary vehicle parking pads may be constructed in the interim.
- Construction of a Proposed Vehicle Storage Shed (Facility EHR507).
- Demolition of the existing ECP (Bldg 1867).
- Demolition of the existing Bldg 1864, and relocation of its transformer equipment into a hardened transformer building in the MSA.
- Demolition of the existing Bldg 1837, and relocation of its transformer equipment into a hardened transformer building in the WSA.
- Demolition of Bldgs 1871, 1872, and 1873.
- Demolition of Bldg 1868 and its equipment relocated to Bldg 1867.
- Renovation of Bldgs 1870 and 1874 to install new doors, drain trenches, and concrete topping slabs for drainage.
- Renovation of Bldg 1869 to include replacing the HVAC system and lighting, connecting to the EMCS, adding a second maintenance bay (Proposed Facility EHR508), adding an office area (Proposed Facility EHR509), seismically rehabilitating the existing building.
- Seismically rehabilitating and upgrading the existing storage igloos (Bldgs 1823, 1824, 1827, and 1828) with new doors and lightning protection.

- Upgrade of Bldg 1840 HVAC including controls, boilers, chillers, ductwork, pumps, piping, and connection to the EMCS, lighting improvement, structural and non-structural seismic rehabilitation, renovating office spaces, removing asbestos, and replacing the existing armory door.
- Modification of service bays in Bldg 1840 as follows:
  - Bay 1 requires replacement of the existing door.
  - Bay 2 requires removal of the existing roof, raising the walls and crane rails approximately 20 feet, and constructing a new roof. A door would be replaced with reinforced concrete.
  - Bay 5 requires the construction of an EED test cell and bay expansion to the east.
  - Bay 6 and the adjacent mechanical room requires removal of the existing washrack equipment.
- Removal and reuse of berms in selected locations.
- Improvement of drainage, renovation of two sanitary sewer systems and lift stations draining north and south of the WMMSC (this includes new septic tanks and drain fields), development of a parking area outside the northwest corner of the WMMSC, construction of new and reconstruction of existing access roads, expansion of security fencing, and upgrading of site utilities (including communications, water, and natural gas).

2.2.2. No Action Alternative

Under the No Action Alternative, the WMMSC would be maintained in its current condition. Emergency repairs would continue as needed. Some concrete structures would sustain further damage due to water seepage. Current maintenance costs are estimated at $1.3 million per year to keep the facility operational; these costs include both normal maintenance activities and emergency repairs related to water leakage and building deterioration.

Lack of adequate facilities for weapons and munitions maintenance would continue, with personnel conducting maintenance in shifts to accommodate space limitations. Although personnel are currently meeting all maintenance requirements, in the long term the space limitations could lead to morale problems due to extra work requirements and to delays in needed system maintenance. Costs associated with these problems would be difficult to quantify, but could be substantial.

2.3. ALTERNATIVES CONSIDERED BUT ELIMINATED

The Air Force considered the following alternatives in addition to the Proposed Action, the Implementation Alternative, and the No Action Alternative. Based on the criteria discussed in Section 1.2, these four alternatives were eliminated from further consideration and were not assessed in this EA. Figure 2.1-1 shows the location of these sites relative to the Base.

2.3.1. New Construction at Site 1 Alternative

This site lies north of the base and is outside of the base boundary, and would therefore require that the Air Force acquire the property. As noted in Section 1.1, no funds are currently allocated for acquiring off-base property. This site is closer than Sites 2, 3, and 4 to family housing (FH) and the other built-up portions of the base. The site lies near wetland areas and a drainage path directly to the Missouri River, barely one mile away.

An industrial park area of Great Falls is located nearby, to the west of this site, and the quantity-distance arcs would overlap Rainbow Dam Road, although the arcs would not affect a nearby historic rail line that lies north of the site. This alternative would also involve the construction of all new facilities, which would be far more costly than the renovations included in the Proposed Action. For these reasons, and its off-base location, this alternative was eliminated from further consideration.

2.3.2. New Construction at Site 2 Alternative

This site is on base, southwest of the existing WMMSC, and is somewhat closer to the runway. The quantity-distance arcs would overlap the flightline area, thus prohibiting any future use of the runway by commercial aircraft (see Section 2.4). This alternative would also involve the construction of all new facilities, which would be far more costly than the renovations included in the Proposed Action. For these reasons, this alternative was eliminated from further consideration.

2.3.3. New Construction at Site 3 Alternative

Site 3 is the location of the existing WMMSC. This alternative would involve demolition of existing facilities and construction of all new facilities, and would be far more costly than the renovations included in the Proposed Action (about $89 million versus $28 million). For these reasons, this alternative was eliminated from further consideration.

2.3.4. New Construction at Site 4 Alternative

This site is near the southeast corner of the base and is outside the base boundary. The area has multiple property owners, which would make it more difficult to site the facility because of land acquisition requirements, and as noted above and in Section 1.1, no funding has been allocated for acquiring off-base property. The quantity-distance arcs would overlap or approach Highwood Road, and would be close to U.S. Highway 87, a major east-west thoroughfare. This alternative would also involve the construction of all new facilities, which would be far more costly than the renovations included in the Proposed Action. For these reasons, this alternative was eliminated from further consideration.

2.4. REASONABLY FORESEEABLE CUMULATIVE ACTIONS

The impacts of implementing the Proposed Action would be concurrent with other actions at Malmstrom AFB and in the Great Falls area. For example, there is ongoing construction of dormitories and other buildings at Malmstrom AFB, as well as highway improvements and other construction in the city of Great Falls, that could be concurrent with the Proposed Action. A possible Malmstrom AFB project for FY 2001 or FY 2002 is to move the Main Gate to the location of the Commercial (North) Gate (entering from

10th Avenue North), and make the current location of the Main Gate (entering from 2nd Avenue North) the Commercial Gate. In addition, a helicopter operations facility addition to Bldg 1440 is proposed for construction in FY 2001. In August 2000, HQ AFSPC/XPPB submitted a request to site an Army National Guard Armory on Malmstrom AFB. The proposed location is on the west side of the runway, at some distance from the WMMSC, which is located on the east side of the runway.

Further impacts of implementing the Proposed Action concurrently with other actions (including those at Malmstrom AFB and in the Great Falls area) in the project timeframe are not known at this time but would be addressed as they are identified. Additional actions occurring on base during this timeframe would be assessed separately in other National Environmental Policy Act (NEPA) documents.

There is a possibility that the Malmstrom AFB runway may be used commercially at some time in the future. Before that could occur, several actions must take place on Malmstrom AFB that involve the relocation of certain facilities and the handling of explosives or hazardous materials (these actions would also be assessed separately in other NEPA documents). Although consideration of that potential commercial use is outside the scope of this EA, the upgrade to the WMMSC is one of the actions that must occur to allow commercial use of the runway. Planning is ongoing to facilitate changes that could allow the future use of the runway for commercial operations.

2.5. SUMMARY OF POTENTIAL IMPACTS

Based on discussions with Air Force personnel, and comparisons with similar military activities, areas of potential concern for the Proposed Action, the Implementation Alternative, and No Action Alternative have been identified. The potential impacts were evaluated and are described in Chapter 4.

Impacts can be adverse (negative) or beneficial. The intensity of an adverse impact can be significant or not significant. *No impact* is specified in cases in which a resource would not be affected because certain resource elements (e.g., floodplains, sensitive noise receptors, or low-income or minority populations) are not present in the area of the Proposed Action or an Implementation Alternative. *No impact* could also occur under the No Action Alternative if there were no changes to the existing environment. Mitigations may be implemented to reduce a significant impact to one of non-significance, but may also be performed to reduce the severity or duration of any adverse impact. Impacts are typically adverse, but beneficial effects can result if the action measurably improves the condition. Beneficial impacts are not characterized as to their level of significance. Each resource section includes an analysis of whether a potential impact is significant and the basis for the significance determination, and identifies any needed or recommended mitigations for that resource.

Where applicable, impacts are also defined as permanent or long-lasting (long-term), or temporary and of short duration (short-term). For this project, short-term (ST) impacts are defined as those lasting two years or less (the timeframe for completing the project), while long-term (LT) impacts last more than two years. Table 2.5-1 summarizes the impacts for each resource area under the Proposed Action, the Implementation Alternative, and the No Action Alternative.

Table 2.5-1 Summary of Impacts			
	Proposed Action	**Implementation Alternative**	**No Action Alternative**
Legend: ST = short-term; LT = long-term			
Air Resources			
Air Quality	No significant increase in air emissions during construction and operation of facilities	No significant increase in air emissions during construction (slightly greater air emissions than Proposed Action) and operation of facilities	No change in current level of air emissions
Geological Resources			
Geology	No significant impacts from excavation and fill material	No significant impacts from excavation and fill material (slightly more land disturbance than the Proposed Action)	Minor temporary disturbances from continued repairs to facilities
Soils	No significant disturbance of soils	No significant disturbance of soils (slightly greater than the Proposed Action)	Minor temporary disturbances from continued repairs to facilities
Water Resources			
Groundwater	No significant impacts to aquifers from excavation and decreased recharge.	No significant impacts to aquifers from excavation (slightly more than Proposed Action) and decreased recharge (slightly less than Proposed Action)	No impact to aquifers
Surface Water	No significant impacts from sedimentation and erosion	No significant impacts from sedimentation and erosion (slightly greater than the Proposed Action)	Continued occasional ponding at WMSSC
Floodplain	No impact to floodplains	No impact to floodplains	No impact to floodplains
Water Quality	No significant impact to water quality	No significant impact to water quality	No impact to water quality
Biological Resources			
Vegetation	No significant impact from vegetation disturbance	No significant impact from vegetation disturbance (slightly more than the Proposed Action)	Minor temporary disturbances from continued repairs to facilities
Wildlife	No significant impact from displacement of wildlife	No significant impact from displacement of wildlife	Minor temporary disturbances from continued repairs to facilities
T&E Species	No significant impact to T&E species	No significant impact to T&E species	No impact to T&E species
Wetlands	No significant impact to wetlands	No significant impact to wetlands	No impact to wetlands
Cultural Resources			
Cultural Resources	No impacts to cultural resources	No impacts to cultural resources	No impacts to cultural resources
Noise			
Noise	No significant ST noise increase associated with construction activities; no LT impact	No significant ST noise increase (slightly greater than the Proposed Action) associated with construction activities; no LT impact	Noise levels would remain the same

Table 2.5-1
Summary of Impacts

	Proposed Action	Implementation Alternative	No Action Alternative
Legend: ST = short-term; LT = long-term			
Socioeconomics			
Local Economy	ST beneficial impact to employment & income; no significant LT impact	ST beneficial impact to employment & income; no significant LT impact	No change to employment & income
Population	No ST significant impact to population; no LT impact	No ST significant impact to population; no LT impact	No change to population
Environmental Justice			
Low-income or minority populations	No impact to low-income or minority populations	No impact to low-income or minority populations	No impact to low-income or minority populations
Transportation			
Road Network	No ST significant impact from additional vehicle traffic during construction activities; no LT impact	No ST significant impact from additional vehicle traffic during construction activities; no LT impact	No change in vehicle traffic
Environmental Programs			
Health & Safety	No significant impact to health & safety from construction and operation of facilities	No significant impact to health & safety from construction and operation of facilities	No significant impact from continued operations
Asbestos	No ST significant impact from asbestos handling & disposal; LT beneficial impact from asbestos removal	No ST significant impact from asbestos handling & disposal; LT beneficial impact from asbestos removal	No significant impact from asbestos in facilities
Lead-Based Paint (LBP)	No ST significant impact from LBP handling & disposal; LT beneficial impact from LBP removal	No ST significant impact from LBP handling & disposal; LT beneficial impact from LBP removal	No significant impact from LBP in facilities
Polychlorinated Biphenyls (PCB)	No ST significant impact from PCB handling & disposal; LT beneficial impact from PCB removal	No ST significant impact from PCB handling & disposal; LT beneficial impact from PCB removal	No significant impact from PCBs in facilities
Hazardous material/hazardous waste	No significant impact from use of materials and generation of wastes	No significant impact from use of materials and generation of wastes	No significant impact from continued use
Installation Restoration Program	No significant impacts to IRP from construction or operation of facilities	No significant impacts to IRP from construction or operation of facilities	No impact to IRP
Solid Waste	No ST significant increase in solid waste from construction activities	No ST significant increase in solid waste from construction activities (slightly more than under the Proposed Action)	No change in solid waste generation
Wastewater	Beneficial impact from replacement of sanitary sewer system	Beneficial impact from replacement of sanitary sewer system	Wastewater system backup would continue to occur
Storm water	Beneficial impact to flow of storm water from upgrading the drainage system	Beneficial impact to flow of storm water from upgrading the drainage system	Storm water flooding problems would continue to occur

CHAPTER 3
AFFECTED ENVIRONMENT

3. AFFECTED ENVIRONMENT

This chapter describes the relevant environment at Malmstrom Air Force Base (AFB), providing baseline information to allow the evaluation of potential environmental impacts that could result from the Proposed Action, the Implementation Alternative, and the No Action Alternative. As stated in 40 CFR §1508.14, the human environment includes natural and physical resources and the relationship of people to those resources. The environmental baseline resource areas described in this chapter were selected after identifying the potential issues and concerns related to the Proposed Action, Implementation Alternative, and No Action Alternative. Only relevant resource areas are described; resource areas that would not be impacted are not described in this chapter, nor evaluated in Chapter 4. For example, the Proposed Action or Implementation Alternative would occur on land that is already used for similar purposes and would involve structures that are similar to those in place, and there are no underground storage tanks (UST) involved in either alternative. For these reasons, impacts to land use, aesthetics, and USTs are not addressed in this Environmental Assessment (EA).

The chapter begins with a brief description of the history and mission of Malmstrom AFB, followed by a discussion of the resource areas that may be impacted by the Proposed Action, Implementation Alternative, or No Action Alternative. These include air, geological, water, biological, and cultural resources; noise; socioeconomic resources; environmental justice; transportation; and environmental programs. The order of resource description is based on introducing the physical environment (air, geology, and water), the natural environment (biology), the human environment (cultural resources, noise, socioeconomics, environmental justice, and transportation), and concludes with the environmental framework (environmental programs) that manages the aforementioned resources and controlled materials and waste.

History and Mission of Malmstrom AFB

Operations at the future Malmstrom AFB began during World War II as an outgrowth of using the Great Falls Airport to transport war materials to the Allies as part of the Lend-Lease Act. When the flow of materials overwhelmed the airport, East Base was constructed, opening in late 1942 as Great Falls Army Air Base. After World War II, the base was used by the Military Air Transport Service to train C-54 transport crews, playing a significant role in Operation Vittles, also known as the Berlin Airlift. In 1954, the Strategic Air Command assumed control of Great Falls AFB when it activated the 407th Strategic Fighter Wing. In 1956, the base was renamed Malmstrom AFB in honor of Colonel Einar Axel Malmstrom, a World War II combat pilot and prisoner of war, who was Deputy Wing Commander at Great Falls AFB at the time of his death in 1954.

Malmstrom AFB has experienced many mission changes over the years. In 1961, the 341st Strategic Missile Wing was activated, and Malmstrom AFB became the home of the first Minuteman Intercontinental Ballistic Missile (ICBM) Wing. In 1993, Malmstrom AFB moved under control of the Air Force Space Command. In 1996, the base's KC-135 planes were realigned to another base, and fixed-wing aircraft operations ceased at Malmstrom AFB.

Today, the host unit at Malmstrom AFB is the 341st Space Wing (SW), which includes four Minuteman III (MM III) missile squadrons (MS). The deployment area for these missile facilities comprises 23,000 square miles of western Montana. The 40th Rescue Flight operates seven helicopters that support MM III operations.

3.1 AIR RESOURCES

3.1.1 Climate and Meteorology

Malmstrom AFB and the Weapons and Munitions Maintenance and Storage Complex (WMMSC) are located on the western edge of the Great Plains, near the eastern edge of the Rocky Mountains. The Rocky Mountains and numerous smaller ranges exert a strong regional effect on the weather at Malmstrom AFB (precipitation is higher and temperatures are lower near the mountains). The climate is dominated by continental air masses, with invasions of frigid polar and arctic air masses from the north during the winter. In the summer, continental air masses move in from the southwestern United States, causing hot dry weather, and occasional warm humid tropical air masses in from the south. The clashes of these air masses cause the area to have severe storms and rapid changes in temperature. On average, about 27 thunderstorms occur each year, mainly in the months of June, July, and August (WRCC, 2000). Mean monthly temperatures at Malmstrom AFB range from 22 degrees Fahrenheit (°F) in January to 69 °F in July. Daily temperatures range from -36 °F in the winter to 106 °F in the summer.

Prevailing winds at Malmstrom AFB are from the southwest during all months, except July, and August, when winds are from the west. Southwest winds often reach 25 to 50 miles per hour with mean wind speeds ranging from 10 miles per hour in summer to 15 miles per hour in the winter. The area has excellent visibility, ranging between 45 and 65 miles. The relative humidity of the area is usually low, averaging around 30 percent in the summer and 60 percent in the winter.

Average annual precipitation is 15 inches with an average annual snowfall of 51 inches. Most of the precipitation during the late fall, winter, and early spring falls as snow, but the strong winds prevent large accumulations. Based on the average annual precipitation, the area would be classified as semi-arid, with about 70 percent of the annual rainfall occurring during the April to September growing season.

3.1.2 Regional Air Quality

The National Ambient Air Quality Standards (NAAQS), established by the United States Environmental Protection Agency (USEPA), define the maximum allowable concentrations of pollutants that may be reached but not exceeded within a given time period. Six "criteria" pollutants are regulated by the NAAQS. The criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and particulate matter. Particulate matter has been further defined by size. There are standards for particulate matter smaller than 10 microns in diameter (PM_{10}) and smaller than 2.5 microns in diameter ($PM_{2.5}$). Compliance with the $PM_{2.5}$ standard will be phased in during future years. Particulate matter (PM_{10} and $PM_{2.5}$) is generated during ground disturbing activities and during combustion. The principal source of CO and SO_2

is combustion. The precursors of O_3 (volatile organic compounds (VOC) and NO_2) are also primarily emitted from combustion.

Malmstrom AFB is located within the Great Falls Air Quality Control District, which includes Blaine, Cascade, Chouteau, Glacier, Hill, Liberty, Pondera, Teton, and Toole Counties. The *Clean Air Act of Montana* allows the development of local air pollution control programs. Montana has adopted additional state air quality standards, promulgated as the Montana Ambient Air Quality Standards (MAAQS); the standards are shown in Table 3.1-1.

Table 3.1-1
National Ambient Air Quality Standards (NAAQS)
and Montana Ambient Air Quality Standards (MAAQS)

Pollutant	Averaging Time	NAAQS $\mu g/m^3$ (ppm)[a]		MAAQS
		Primary[b]	Secondary[c]	
O_3	1 hr	235 (0.12)[d]	same	196 (0.10)
	8 hr	157 (0.08)	same	
CO	1 hr	40,000 (35)	none	26,000 (23)
	8 hr	10,000 (9)	none	10,000 (9)
NO_2	AAM[e]	100 (0.053)	same	94 (0.05)
SO_2	3 hr	None	1,300 (0.5)	
	24 hr	365 (0.14)	none	262 (0.10)
	AAM	80 (0.03)	none	52 (0.02)
PM_{10}	AAM	50	same	same
	24 hr	150	same	same
$PM_{2.5}$	AAM	65	same	same
	24 hr	15	same	same
Pb	¼ year	1.5	same	1.5
H_2S	1 hr			0.05 ppm
Visibility	AAM			$3 \times 10^{-5}/m$[f]
Fluoride in Forage	Monthly Average			50 µg/g
	Grazing Season			35 µg/g

[a] $\mu g/m^3$ — micrograms per cubic meter; ppm — parts per million

[b] National Primary Standards establish the level of air quality necessary to protect the public health from any known or anticipated adverse effects of a pollutant, allowing a margin of safety to protect sensitive members of the population.

[c] National Secondary Standards establish the level of air quality necessary to protect the public welfare by preventing injury to agricultural crops and livestock, deterioration of materials and property, and adverse impacts on the environment.

[d] On June 5, 1998 EPA issued the final rule identifying areas where the 1-hour NAAQS for ozone is no longer applicable because there has been no current measured violation of the 1-hour standard in such area's time.

[e] AAM —Annual Arithmetic Mean.

[f] Based on scattering coefficient measured by integrating nephelometer method.

PM_{10} is particulate matter equal to or less than 10 microns in diameter.

$PM_{2.5}$ is particulate matter equal to or less than 2.5 microns in diameter.

Source: MDEQ, 2000b

These standards were selected to protect human health with a reasonable margin of safety. Exceeding the concentration levels within a given time period is a violation, and constitutes a nonattainment of the pollutant standard. Montana has 16 areas that have been designated as nonattainment. These areas have exceeded the NAAQS for at least one of the following criteria pollutants.

Great Falls had been designated as a nonattainment area for CO in 1980 but was categorized as "unclassified" under provisions of the *Clean Air Act* (CAA) Amendments of 1990. This label category was designated because monitoring levels for the nonattainment area are averaging less than 9.1 parts per million (ppm) and, pending technical studies to verify no exceedences, is being reviewed by USEPA to be designated attainment status (Raisch, 2000). The Great Falls CO unclassified area does not include Malmstrom AFB. Consequently, the base is in attainment for all criteria pollutants.

In order to prevent future air quality problems, Montana relies primarily on its permitting program to meet the requirements of the federal CAA Amendments of 1990. This program requires all significant stationary sources of air pollution to obtain a permit from the Montana Department of Environmental Quality (MDEQ) prior to construction (*Administrative Rules of Montana* (ARM), 17.8.704 *et seq*). Montana requires a permit for any stationary source that may emit more than 25 tons per year of any criteria air pollutant (except lead, which has a cap of 5 tons per year). Montana's permitting program has USEPA approval and operates in lieu of a federal program. There are no additional local requirements for construction (Clifton, 2000). Mobile sources for construction are exempt from this provision. However, it is required that "no person shall operate a construction site or demolition project unless reasonable precautions are taken to control emissions of airborne particulate matter" (ARM 17.8.308).

Prevention of Significant Deterioration (PSD) area classification requirements (40 CFR 52.21 and ARM 17.8.800 *et seq.*) regulate the construction of new major stationary sources of criteria pollutants or significant modifications to existing major sources in order to protect local and regional visibility. The following criteria determine the significance of a modification:

- Carbon monoxide: 100 tons per year (tpy)
- Nitrogen oxides (NO_x): 40 tpy
- Sulfur dioxide: 40 tpy
- Particulate matter: 25 tpy of PM emissions and 15 tpy of PM_{10} emissions
- Ozone: 40 tpy of VOCs
- Lead: 0.6 tpy
- Fluorides: 3 tpy
- Sulfuric acid mist: 7 tpy
- Total reduced sulfur (including hydrogen sulfide (H_2S)): 10 tpy
- Reduced sulfur compounds (including H_2S): 10 tpy

Significance is also determined by increases in ambient air quality, according to the classification of the area. Class I areas allow the smallest incremental growth and accommodate only a small degree of air quality deterioration. Class II areas can accommodate normal, well-managed industrial growth. Class III areas allow the largest

increments of growth and provide for a larger amount of development than either Class I or Class II areas. PSD requirements include an exemption for concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities of new or modified sources (ARM 17.8.807).

Congress has identified several mandatory Class I areas and allows state and tribal authorities to designate other Class I areas. In Montana, the following areas have been designated as Class I areas:

- National Parks: Glacier and Yellowstone
- National Wilderness Areas: Anaconda-Pintler, Bob Marshall, Cabinet Mountains, Gates of the Mountains, Medicine Lake, Mission Mountains, Red Rock Lakes, Scapegoat, Selway-Bitterroot, and UL Bend
- Native American Reservations: Northern Cheyenne, Flathead, and Fort Peck

Benton Lake National Wildlife Refuge, located approximately 15 miles northwest of Great Falls and portions of Lewis and Clark National Forest, located approximately 25 miles southeast and 35 miles south of Malmstrom AFB are the only designated Class I sensitive areas within proximity of the base.

3.1.3 Air Pollutant Sources

The air quality at Malmstrom AFB has been identified by USEPA as being better than the NAAQS. An air pollution emissions inventory based on calendar year 1996 data was developed for Malmstrom AFB. Emission estimates were made for stationary source pollutants regulated under Title V of the CAA Amendments of 1990. For the purposes of Title V, a major pollutant from all stationary sources exceeds 100 tpy. The results of the stationary source inventory show that actual criteria pollutant emissions during 1996 were below federal and state standards: VOC (38.87 tpy), NO_x (60.34 tpy), CO (19.88 tpy), sulfur oxides (SO_x) (3.66 tpy), PM (4.98 tpy), PM_{10} (4.90 tpy), and Pb (<0.01 tpy). Boiler operation was the largest source of criteria pollutant emissions at Malmstrom AFB during 1996. Based on potential emission estimates performed for each stationary source category, Malmstrom AFB has the potential to be a major source for the following criteria pollutants: CO (151 tpy), NO_x (408 tpy), and SO_x (170 tpy). The largest source of potential criteria pollutant emissions at Malmstrom AFB is the central heating plant (USAF, 1998b).

3.1.4 Hazardous Air Pollutants

Hazardous air pollutants (HAP) include a wide range of materials or chemicals that are toxic or potentially harmful to human health. Emissions of a wide range of metals, organic and inorganic chemicals, and radionuclides are regulated under 40 CFR 61. Emissions of radionuclides from federal facilities are regulated under 40 CFR 61 Subpart I. Emissions of radionuclides to the ambient air from a facility regulated under this subpart shall not exceed those amounts that would cause any member to the public to receive in any year an effective dose equivalent of 10 millirem (mrem) per year within the WMMSC. Radionuclide emissions have not been detected outside of the current storage area. Properly constructed barrier walls and indoor shields prevent ambient exposures of possible radiation from storage of radioactive material (Dorton, 2000).

3.2 GEOLOGICAL RESOURCES

Geological resources discussed in this EA include physical features of the earth such as geology (surface and subsurface features), topography, and soils within the vicinity of the Proposed Action and Implementation Alternative.

3.2.1 Geology and Topography

Malmstrom AFB is located 75 miles east of the Rocky Mountains in the Missouri Plateau section of the Great Plains Province. The base's topography is nearly level to rolling plains, with plateaus sloping away from the Little Belt Mountain Range, which lies 24 miles southeast of the Base. The area is moderately dissected by streams, which drain north from the base and ultimately discharge into the Missouri River. Elevations range from about 3,360 feet in the northeast corner of the base to 3,535 near the southwest corner of the base. Small valleys carved by coulees are up to 20 feet deep (USGS, 1994a; USGS, 1994b). Elevations at the WMMSC range from approximately 3,400 feet in the southwest corner to about 3,380 in the northeast portion. Coulees are generally five to ten feet deep around most of the WMMSC, but up to 20 feet deep just to the northeast.

Malmstrom AFB is situated over the eastern section of the Sweetgrass Arch, which is the dominant bedrock feature in North Central Montana. The Sweetgrass Arch lies between the Base and the Little Belt Mountains and extends into Alberta, Canada (USAF, 2000e). Typical rock formations that are present throughout the normal region are either missing or noticeably thinner in the Sweetgrass Arch. The strata overlying the sedimentary and igneous bedrock in the region includes impervious glacial till and windblown deposits. These deposits range in age from the Madison Limestone of the Mississippian era (360 million years) to the Eolian Sand of the Holocene (10,000 years). The combined thickness of the Holocene sand deposits and the sandy silty glacial deposits is approximately 10 feet. This layer is separated from the bedrock by till ranging from 50 to 200 feet (USAF, 2000e).

There are no geologic hazards at Malmstrom AFB. However, major faults are located within 100 miles of the base. The Intermountain Seismic Belt extends through western Montana from near Yellowstone Park to the Flathead Lake region (MBMG, 2000a). The closest fault to the base is the Helena Valley Fault that lies approximately 70 miles southwest of the base. The second closest fault is the Canyon Ferry Fault, which lies approximately 100 miles south of the base. Both faults have characteristic magnitudes (an expected magnitude of earthquake based on fault geology and stress in the fault) of 6.3 on the Richter Scale (USGS, 2000a). Based on potential ground acceleration in the area, the magnitude of potential earthquakes would diminish to around 4.5 on the Richter Scale in the vicinity of Great Falls. Malmstrom AFB is located in Zone 2B for potential earthquake damage (USAF, 1992), with slight damage anticipated from any seismic event, and expected magnitudes in the range of 4.5 on the Richter Scale (VI on the Modified Mercalli Scale). Earthquakes of this magnitude would typically cause breakage of windows or plaster or other slight damage. Since 1973, there have been two earthquakes within 100 kilometers (km) of Malmstrom AFB, a 3.3 magnitude quake 40 km (25 miles) to the southeast, and a 3.2 magnitude quake 94 km (60 miles) to the southwest (USGS, 2000b).

3.2.2 Soils

Two soil series cover the majority of Malmstrom AFB. The Lawther series, which is mostly silty clay or clay, covers over half of the base. The Dooley series, which is made up of sandy loam, sandy-clay loam, clay loam and clay, is found on the northwestern third of the Base (USDA, 1982). However, within the area of the Proposed Action, three soil series (Gerber, Lawther, and Hillon) occur. Properties of these soils are provided in Table 3.2-1. The western half of the area is Gerber silty clay loam. Most of the rest is Lawther silty clay. Along the eastern edge and southeast corner, the Hillon clay loam occurs (see Figure 3.2-1). The Gerber and Lawther series are comprised of clays that have a tendency to shrink and swell. The unstable foundation material can often cause construction problems unless the soil is modified or the design of the building is altered for this soil type.

Table 3.2-1
Soil Properties of Gerber, Lawther, and Hillon Soils

Soil Property	Gerber	Lawther	Hillon
Location	Terraces	Terraces and fans	Terrace edges and foot slopes
Permeability	Slow (0.06-0.2 Inches/hr)	Slow (0.06-0.2 Inches/hr)	Slow (0.06-0.2 Inches/hr)
Runoff	Slow to medium	Medium	Rapid
Water erosion hazard	Moderate	Slight	Severe
Wind erosion hazard	Moderate	Moderate	Slight
Texture	0-32 inches: silty clay loam	0-30 inches: silty clay	0-60 inches: Clay Loam
	32-60 inches: clay loam	30-60 inches: clay	
Seasonal high water	Greater than 6 feet	Greater than 6 feet	Greater than 6 feet
Shrink-swell potential[1]	High	High	Moderate
Excavation limits	Severe: shrink swell, low strength	Severe: shrink swell, low strength	Severe: slope
Hydrologic Group[2]	D	D	B
Flooding	None	None	None
Depth to bedrock	Greater than 60 inches	Greater than 60 inches	Greater than 60 inches

[1] The shrink-swell potential is a measure of the volume change from dry to wet conditions. A low shrink-swell potential is a volume change of less than three percent.

[2] Hydrologic groups are based on runoff and infiltration characteristics. Group A soils have low runoff and high infiltration, Group B soils have medium runoff and moderate infiltration, Group C soils have medium runoff and slow infiltration, and Group D soils have high runoff and very slow infiltration.

Source: USDA, 1982

Of the soil types on base, Hillon soils have the greatest potential for erosion, due to texture and slope. Hydric soils are located approximately 1,600 feet to the east of the proposed construction area (USDA, 1982). Hydric soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic (living without free oxygen) conditions in the upper part of the soil. These soils are sufficiently wet to support the growth and regeneration of hydrophytic vegetation. Hydric soils and hydrophytic vegetation are among the criteria for determining the presence of a wetland.

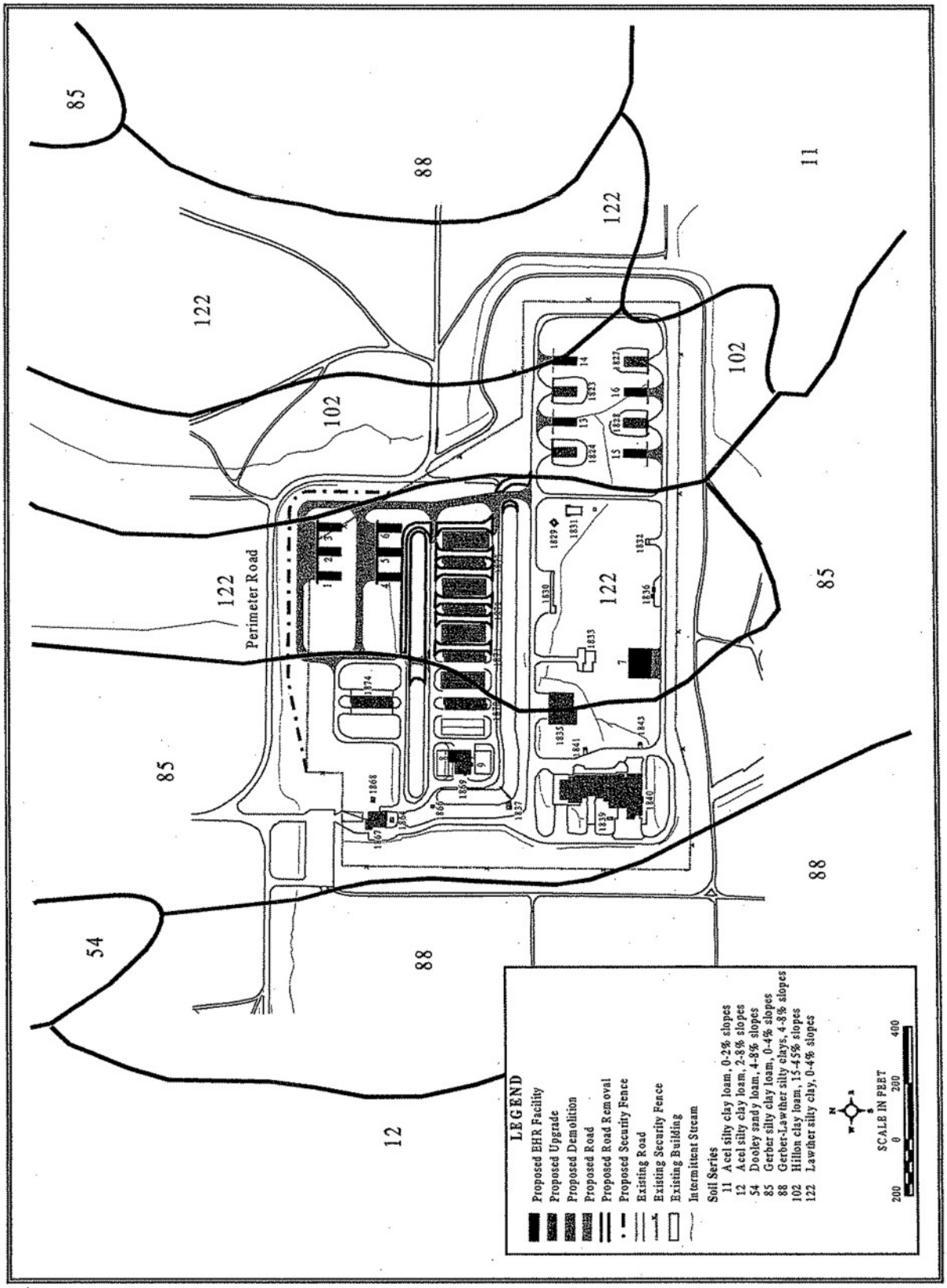


Figure 3.2-1 Soil Series at the WMMSC

3.3 WATER RESOURCES

Water resources include the quantity and quality of both surface and groundwater sources. The hydrologic cycle results in the transport of water into various media such as the air, the ground surface, and subsurface. Natural and human-induced factors determine the quality of water resources. Water resources discussed in this document include groundwater, surface water, floodplains and water quality.

3.3.1 Groundwater

Malmstrom AFB lies in the Glaciated Central Groundwater Region (MGA, 2000). Major groundwater aquifers beneath Malmstrom AFB include alluvial aquifers, glacial aquifers, the Kootenai Aquifer, and the Madison-Swift Aquifer. Shallow aquifers composed mostly of unconsolidated alluvium, glacial, and bench deposits are between 20 and 40 feet deep (USAF, 2000e). Some shallow groundwater can be found on base at depths of 3 to 20 feet. Shallow groundwater is derived through precipitation infiltrating unconfined and unconnected sand lenses that range in depth from 3 to 25 feet below the ground surface. Groundwater at the WMMSC is several feet deep and tends to be somewhat higher in the spring.

Confined bedrock aquifers are located in Mesozoic and Paleozoic rock. The Kootenai Formation found in Mesozoic rock lies at depths of 100 to 1,000 feet and is found in interbedded sandstone and shale. The Kootenai Formation is about 150 to 300 feet below the surface at Malmstrom AFB (about 300 feet deep in the vicinity of the WMMSC). The aquifer is situated in interbedded sandstone, siltstone, and shale, and is confined by shale within the Kootenai formation. Typically, a layer of shale about 20 to 40 feet thick at a depth of 180 to 300 feet overlies a dry layer of sandstone (20 to 30 feet thick). Another 20- to 50-foot layer of shale overlies the water-containing layer of sandstone within the formation (MBMG, 2000b).

The Madison-Swift Aquifer is between 500 and 3,000 feet from the surface. The Madison-Swift Aquifer is about 450 to 500 feet deep beneath the base. This confined aquifer is located in Paleozoic rock, primarily composed of limestone, dolomite, anhydrite, and halite. This aquifer is typically overlain by nearly 200 feet of glacial till and 300 feet of shale, limestone, and sandstone. The layers of shale are generally 70 to 110 feet thick (MBMG, 2000b). Confined aquifers flow north and shallow unconfined aquifers follow topographic gradients (MGA, 2000). The Madison-Swift Aquifer has the greatest potential for future development, but is not used due to the ample supply of surface water from the Missouri River (USAF, 2000e).

Groundwater has been encountered at less than 25 feet in some locations on the base, is not used currently, and is unlikely to be used in the future because of the availability of surface water.

3.3.2 Surface Water

Surface water is the principle potable water supply to both Malmstrom AFB and the City of Great Falls. All base water is received from the City of Great Falls, which exclusively uses treated water from the Missouri River. The water supply is adequate to meet the needs of the base and provide for moderate growth (USAF, 2000f). The Missouri River

is located approximately one mile north of the base. The stretch from Fort Benton (about 40 miles to the northeast of Great Falls) to U.S. Highway 191 has been designated a Wild and Scenic River by the U.S. Fish and Wildlife Service.

The base lies on a plateau approximately 10 square miles in area, and drains north to the Missouri River. The base contains three perennial, two ephemeral, and one intermittent streams (see Figure 3.3-1). All drainage is through ephemeral streams and coulees (trench-like ravines). North of the base, two other coulees converge into the Whitmore Ravine, which then empties into the Missouri River. These coulees north of the base are highly erodible and can form deltas of silt in the River. Three small, unnamed coulees exist near the WMMSC, which join just north of the WMMSC and continue to the north, eventually converging north of Malmstrom AFB into the Whitmore Ravine.

Nine surface water drainage basins exist on the base (see Table 3.3-1 and Figure 3.3-2). Basins 1 through 6 drain as point discharge. Sampling points are located at the discharge points of these basins (due to limited runoff and convergence of drainage, Basins 5 and 6 share a sampling point). Basins 1 and 3 have the greatest amount of runoff after a storm.

Table 3.3-1
Properties of Drainage Basins At Malmstrom AFB

	Drainage Basin								
	1	2	3	4	5	6	7	8	9
Slopes	2%	2%	2-5%	2-10%	2-43%	2-43%	2-10%	2%	2%
Runoff (cfs)[1]	49.6	10.2	42.4	2.9	N/A[2]	0.1	N/A[2]	N/A[2]	N/A[2]
Basin Area (acres)	576.5	213.6	391.7	74.5	275.7	851.5	598.4	33.0	144.1
Impervious Area (acres)	216.4	76.6	179.2	13.1	28.7	77.4	42.5	5.3	22.2
Percent Impervious	37.5	35.9	45.7	17.6	10.4	9.1	7.1	16.1	15.4
Soil Runoff	slow-medium	slow	slow-medium	slow	slow-medium	medium-rapid	ponded[3]-slow-medium	ponded[3]-slow	slow-medium
Water Erosion Hazard[4]	slight-moderate	slight	slight-moderate	slight-moderate	slight-moderate	slight-severe	slight-moderate	none-slight	slight-moderate
Contaminants of Concern	TSS[5], oils & grease	TSS[5], oils & grease	TSS[5], oils & grease	none	none	none	N/A[6]	N/A[6]	N/A[6]

Notes:
[1] Cubic feet per second, as measured after a rainfall of 0.25 inches over a 2.5 hour period.
[2] Not applicable. Basin 5 has a heavily vegetated ditch in which runoff cannot be measured unless it is a heavy storm. Basins 7, 8, and 9 runoff into sheet flow or infiltrate into the ground.
[3] Ponded runoff in wetland areas or hydric soil.
[4] The water erosion hazard is rated slight, moderate, or severe based on slope, soil texture and structure, organic matter content, permeability, and runoff.
[5] Total suspended solids.
[6] No sampling required as there is no outfall.
Sources: USAF, 1998a; USAF, 2000f; USDA, 1982

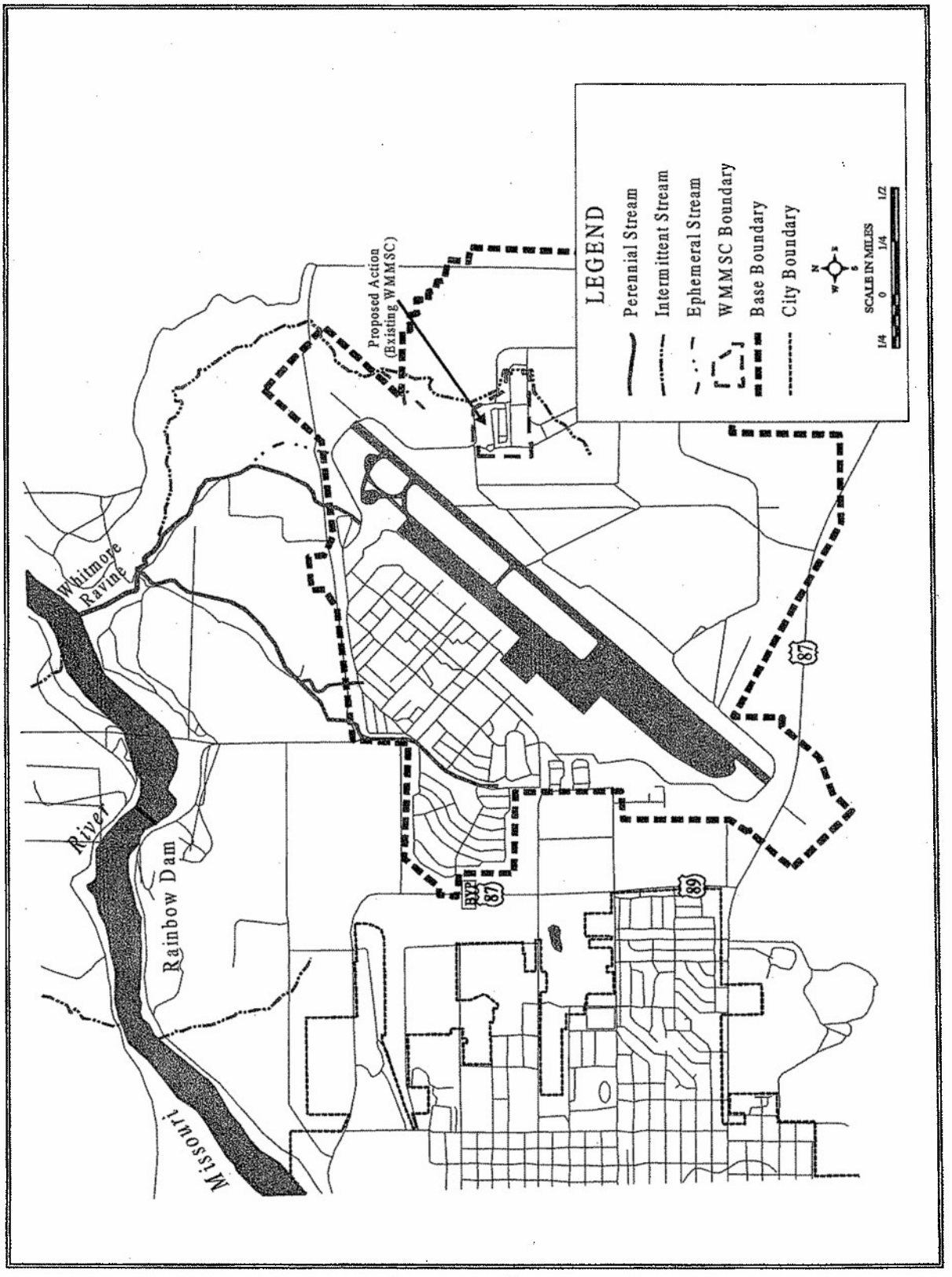


Figure 3.3-1 Surface Water on and Near Malmstrom AFB

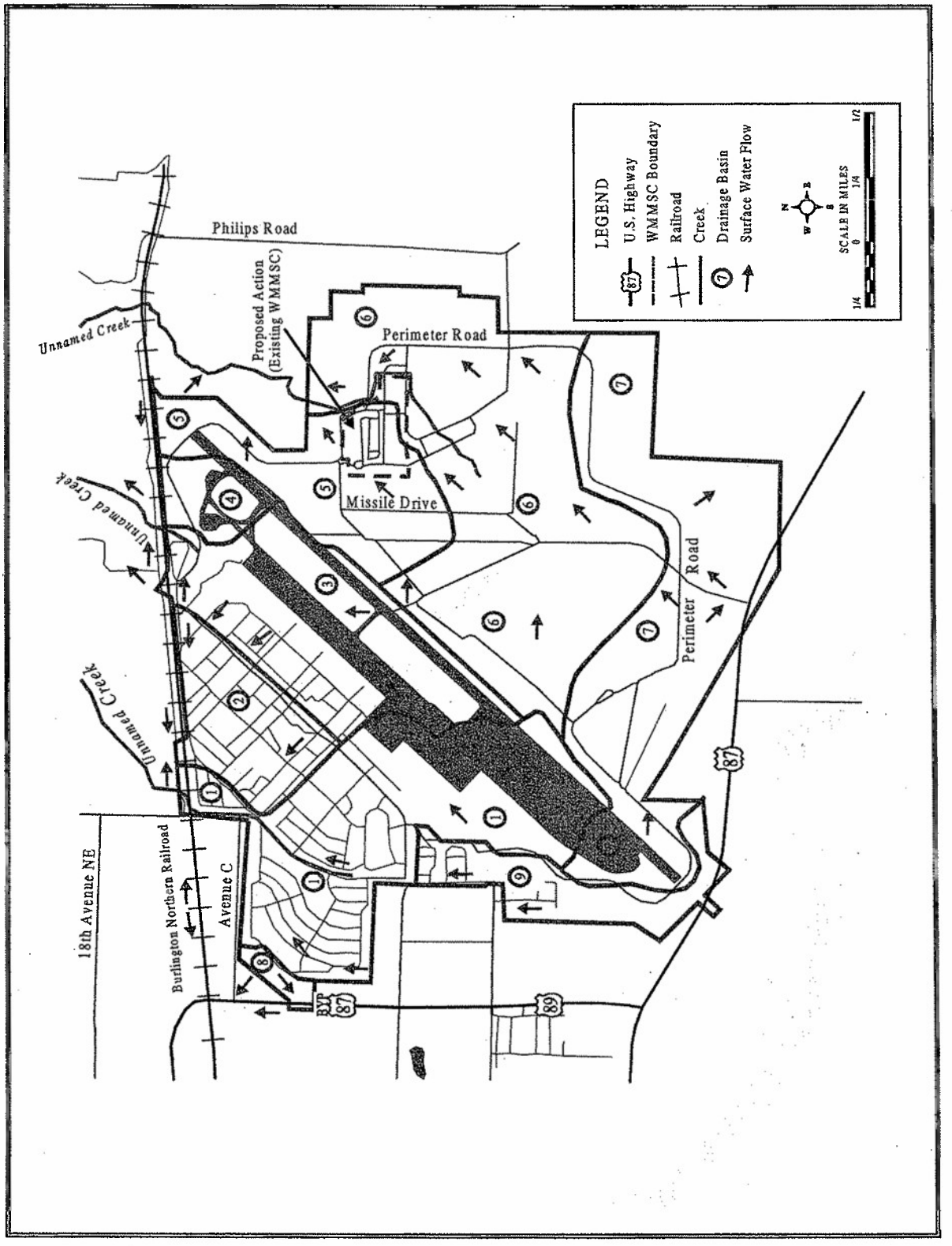


Figure 3.3-2 Drainage Basins on Malmstrom AFB

Basins 5 and 6 (where the WMMSC is located) have very little runoff (as shown in Table 3.3-1) due to heavily vegetated coulees, relatively flat slopes (except near coulees) and infiltration into the ground. Runoff occurring from Basins 5 and 6 is not sufficient to cause or substantially contribute to erosion occurring off-base. There are no contaminants of concern from Basins 5 and 6. Substantial runoff from Basins 5 and 6 only occurs during intense storm events (USAF, 1998a). On average, rain events of 0.5 inches or more only occur nine days annually (USAF, 1996d). Basins 1 and 3 are comprised of nearly 50 percent impervious surface, while Basins 5 and 6 are about 10 percent impervious to water.

The potential for erosion of sparsely vegetated soil by water is slight to moderate in most areas. It is slight to severe in Basin 6; however, due to the heavily vegetated coulees in the vicinity of the WMMSC, the potential for erosion is slight.

Total suspended sediments (TSS) are mainly discharged from outfalls for Basins 1, 2, and 3. Samples of TSS measured in these outfalls are at levels similar to samples from the Missouri River. Most of the erosion occurring in the coulees occurs north of Malmstrom AFB (Heckler, 2000). There is currently no Federal standard for total suspended solids. The State standard for total suspended solids for Class B-3 surface water is that "no increases are allowed above naturally occurring concentrations of sediment, settleable solids, oils, or floating solids which will or are likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish, or other wildlife" (ARM 17.30.601 *et seq.*).

The Proposed Action would take place on Basins 5 and 6. Pow Wow Pond lies approximately 1,600 feet to the southwest of the WMMSC; this impoundment is used for fishing and outdoor recreation. Approximately 36 acres of wet areas exist on the base, almost all of which are man-made areas associated with sewage lagoons and other drainage areas. The WMMSC contains some standing water occasionally and is adjacent to other wet areas, none of which are natural streambeds or ponds.

3.3.3 Floodplain

Malmstrom AFB is located on a high plateau south of the Missouri River and is approximately 100 feet above the 100-year floodplain of the river. The floodplain causes no restriction to development at present (USAF, 2000f).

3.3.4 Water Quality

Groundwater quality is variable for the Malmstrom AFB and Great Falls area. Total dissolved solids in the shallow alluvial and glacial aquifers range from 300 to 2,200 mg/L. Total dissolved solids in the Kootenai Formation aquifers range from 200 to 500 milligrams per liter (mg/L) but may exceed 14,000 mg/L in some parts. The best quality water in this aquifer is found closer to the Belt Mountains. The Paleozoic rock aquifers range from 500 to 300,000 mg/L total dissolved solids, with the best quality near recharge areas. The surficial and bedrock aquifers of the area are all in the Class II specific conductance rating (an indicator of the level of dissolved solids in the

groundwater). Class II water is marginally suitable for public and private water supplies, but is acceptable for agriculture and stock supplies (MGA, 2000).

The Missouri River from Rainbow Dam (north of Malmstrom AFB) to the Marias River is classified "B-3" for water use by the State of Montana. These waters are suitable for drinking and other domestic uses (after conventional treatment), swimming and recreation, non-salmonid fish and aquatic life, wildlife, and agricultural and industrial supply. Impairment of use is caused by PCBs, metals, and nutrients from industrial point sources, crop production, contaminated sediments, sewage disposal, abandoned mining, hydromodification, and natural sources (MDEQ, 2000a).

3.4 BIOLOGICAL RESOURCES

Biological resources include the native and introduced plants and animals that make up natural communities. Natural communities are closely linked to the climate and topography of the area, and change according to the season. The discussion of biological resources is separated into four topics: vegetation, wildlife, threatened or endangered species, and wetlands.

3.4.1 Vegetation

Malmstrom AFB is located on flat to gently rolling terrain that is dominated by a short grassland biome. Little native vegetation currently exists within base boundaries due to developmental activities such as construction. These alteration and modification activities have led to the introduction of grasses and weedy forbs. Some native grass species have recolonized at sites, but only to a small degree. Much of the area surrounding the base, once covered by native grassland, is presently used as cropland (primarily wheat). Most of the open fields around the WMMSC have been plowed and planted with introduced grass species such as Crested wheatgrass *(Agropyron cristatum),* Kentucky bluegrass *(Poa pratensis),* and intermediate wheatgrass *(Elytrigia intermedia).* Weedy forbs which have invaded the area include Bracteate verbena *(Verbena bracteata)* and Summer cypress *(Kochia scoparius).* Riparian type vegetation on base primarily consists of areas of palustrine vegetation and includes both wetland and emergent species. Cottonwood (*Populus deltoides*), box elder (*Acer negundo*), willow (*Salix* spp.), common cattails (*Typha latifolia*), spike rush (*Eleocharis palustris*), and hardstem bulrush (*Scirpus acutus*) are common along these areas.

Weeds declared noxious are those that are difficult to control, easily spread, and are injurious to public health, crops, livestock, land, and other property. Three State of Montana noxious weed species—Canada thistle (*Cirsium arvense*), field bindweed (*Convolvolus arvensis*), and spotted knapweed (*Centaurea maculosa*)—have been found on base (USAF, 2000f).

3.4.2 Wildlife

Wildlife in the Malmstrom AFB area historically included American bison (*Bison bison*), Rocky mountain elk (wapiti) (*Cervus elaphus*), pronghorn antelope (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), American black bear (*Ursus americanus*), and various small mammals.

Effective wildlife habitat is presently limited in the area by the relatively large portion of land used for runways, buildings, and other facilities (USAF, 1996c). Currently, common mammals found in the area include the white-tailed jackrabbit (*Lepus townsendii*), badger (*Taxidea taxus*), striped skunk (*Mephitis mephitis*), deer mice (*Tragulus javanicus*), ground squirrels (*Spermophilis* spp.), and an occasional coyote (*Canis latrans*). Large game mammals such as white-tailed deer, mule deer, and pronghorn antelope, occasionally have been spotted crossing the base.

The species of greatest abundance in the area include a variety of songbirds, shorebirds, raptors, and waterfowl. Birds such as the Eared grebe (*Podiceps nigricollis*), Western meadowlark (*Sturnella neglecta*), Horned lark (*Eremophila alpestris*), Bobolink (*Dolichonyx oryzivorus*), Western kingbird (*Tyrannus verticalis*), and McCown's longspur (*Calcarius mccownii*) inhabit the region. A waterfowl survey indicated that there may be some limited waterfowl production on the base, or on lands immediately adjacent to the base (USAF, 1996c). Mallards (*Anas platyrhynchos*), Northern pintails (*Anas acuta*), and shovelers (*Anas clypeata*) have been observed in wetlands on-base.

The base has one small man-made pond, located on the west side of the base at the Pow Wow Recreation Area, capable of supporting a fishery. The one-acre pond is stocked annually with rainbow trout by the Montana Department of Fish, Wildlife, and Parks.

3.4.3 Threatened or Endangered Species

A listed species, provided protection under the *Endangered Species Act* (ESA), is so designated because of danger of its extinction as a consequence of economic growth or development without adequate concern and conservation. An endangered species is any species of fish, plant life, or wildlife that is in danger of extinction throughout all or a significant part of its range, other than a species of Insecta determined by the Department, or the Secretary, of the United States Department of the Interior to constitute a pest whose protection under this part would present an overwhelming and overriding risk to humans. A threatened species is any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. A sensitive species is any species where there is a concern for population viability rangewide or in the region.

Table 3.4-1 lists the species identified by the USFWS and the Montana Fish, Wildlife and Parks as Threatened or Endangered species within Montana. Malmstrom AFB falls within the geographic range of only some of the species listed in Table 3.4-1. The least tern, whooping crane, piping plover, grizzly bear, gray wolf, black-footed ferret, and the fish species are not known to exist in vicinity of Malmstrom AFB (Montana Fish, Wildlife & Parks, 2000). The Eskimo curlew is extremely rare and is not likely to occur within the project area. Habitat for the Canada lynx is associated with boreal/coniferous and northern deciduous forests. Habitat for the Water howellia is ponds and lakes in western Montana; it grows where there is little other vegetation or near mannagrass, sedges, and bur-reed. Habitat for the Ute ladies'-tresses is low elevation riparian, spring, and lakeside wetland meadows.

Table 3.4-1 Federal Threatened or Endangered Species		
Scientific Name	Common Name	Status
Mammals		
Ursus arctos horribilis	Grizzly bear	Threatened
Lynx canadensis	Canada lynx	Threatened
Canis lupus	Gray wolf	Endangered
Mustela nigripes	Black-footed ferret	Endangered
Birds		
Haliaeetus leucocephalus	Bald eagle	Threatened
Grus americana	Whooping crane	Endangered
Charadrius melodus	Piping plover	Threatened
Sterna antillarum	Least tern	Endangered
Numenius borealis	Eskimo curlew	Endangered
Falco peregrinus anatum	American peregrine falcon	Endangered
Fish		
Salvelinus confluentus	Bull trout	Threatened
Scaphirhynchus albus	Pallid sturgeon	Endangered
Acipenser transmontanus	White sturgeon	Endangered
Plants		
Howellia aquatilis	Water howellia	Threatened
Spiranthes diluvialis	Ute ladies-tresses	Threatened
Source: ecos/fws.gov/webpage/webpage_usa_lists.html; fwp.state.mt.us/wildlife/wildlife.htm		

Two surveys have been conducted on Malmstrom AFB. In 1994, an Endangered and Threatened Species inventory was completed for Malmstrom AFB (USAF, 1996c). No federally listed threatened or endangered species, or potential habitat for these species, was identified on base. An Evaluation of the Vegetation, Wildlife, and Aquatic Resources of Malmstrom AFB (USAF, 2000g) was conducted in the summer of 1999. This evaluation took place in the southeast portion of the base surrounding the Weapons Storage Area. Although the Weapons Storage Area was not surveyed, it is highly unlikely that any species would occur within the boundaries (the area is maintained grasses) that are not found outside the boundaries. No sensitive plant species or threatened or endangered species or their habitat were identified in this 1999 survey. Information provided by the Montana Natural Heritage Program in March, 2000 for another project on Malmstrom AFB concluded that there were no threatened or endangered plant species identified in the project area (USAF, 2000e). The possibility does exist for transient threatened or endangered animal species, such as the bald eagle (proposed for delisting of its threatened status) and the American Peregrine falcon, to visit the area (USFWS, 2000). The Montana Natural Heritage Program identifies species of special concern to include taxa that are rare, endemic, disjunct, threatened or endangered throughout their range or in Montana, vulnerable to extirpation from Montana, or in need of further research. The term also encompasses species that have a special designation by organizations or land management agencies in Montana, including: Bureau of Land Management Special Status and Watch species; U.S. Forest

Service Sensitive and Watch species; U.S. Fish and Wildlife Service Threatened, Endangered, and Candidate Species.

There is potential for habitat for the ferruginous hawk (*Buteo regalis*) to occur on base. This species has been designated as a species of special concern in the state of Montana (Montana Natural Heritage Program, 2000). Potential habitat also exists on base for the loggerhead shrike (*Lanius ludovicianus*), a species designated on Montana's watch list (USAF, 2000f).

Other species of special concern are the spotted bat (*Euderma maculatum*) and Preble's shrew (*Sorex preblei*). Habitat for the spotted bat is most often in rough, rocky, semi-arid, and arid terrain, varying from ponderosa pine forest to scrub country and open desert. The bat typically roosts in high cliffs and forages over open forests and fields in drier ponderosa pine forests. Habitat for the Preble's shrew is most often rock fields, prairies, and forests at high elevations.

There are six plant species of special concern located in the vicinity of the Great Falls area (Montana Natural Heritage Program, 2000). The six species include: Roundleaf Water-hyssop (*Bacopa rotundifolia*), many headed *sedge (Carex sychnocephala)*, chaffweed (*Centunculus minimus*), California waterwort (*Elatine californica*), Guadalupe Water-nymph (*Najas guadalupensis*), and dwarf woolly-heads (*Psilocarphus brevissimus).* The General Plan and Fish and Wildlife Plan did not identify these species on base.

3.4.4 Wetlands

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Federal Interagency Committee for Wetland Delineation, 1989). Wetlands are diverse ecosystems that provide natural flood control by storing spring runoff and heavy summer rains, replenish groundwater supplies, remove water pollutants, filter and use nutrients, provide a source of water for livestock and, in dry years, are valuable for crop and forage production. They also provide habitat for many plant and animal species, including economically valuable waterfowl and 45 percent of the nation's endangered species.

Wetlands are regulated under Section 404 of the *Clean Water Act* (CWA) and Executive Order (EO) 11990 (Protection of Wetlands). The U.S. Fish and Wildlife Service (USFWS) Region 6 oversees Wetland Management Districts in Montana to provide wetland areas needed by waterfowl in the spring and summer for nesting and feeding. If avoidance to wetlands is not feasible, in order for the project to proceed, the Deputy Assistant Secretary for Environment, Safety, and Occupational Health must approve a finding of no practicable alternative in accordance with EO 11990.

A National Wetlands Inventory was performed in 1994, and identified all wetland areas on Malmstrom AFB. Approximately 36 acres of wetland habitat exist on base: in the westernmost part of the family housing area; adjacent to the northern base boundary; east of the airfield; in various locations in the vicinity of the WMMSC and Pow Wow Pond; and along a drainage ditch in the southern portion of the base (USAF, 2000f).

The wetlands identified were classified as palustrine (non-tidal wetlands dominated by trees, shrubs, persistent emergent vegetation, emergent mosses or lichens) or riverine (occurring in a channel which is not dominated by trees, shrubs, persistent emergent vegetation, emergent mosses or lichens).

There are three wetlands in the vicinity of the project area (See Figure 3.4-1). The first is a Riverine wetland located just north of Perimeter Road, approximately 110 feet from the project area. This wetland extends north approximately 700 feet, where it drains into a Palustrine wetland. The second is a Palustrine wetland located on the east side of Perimeter Road approximately 100 to 120 feet from the project area. The Palustrine wetland, which is partially fed from WMMSC runoff that drains through a culvert under Perimeter Road, is approximately one-half acre in size and is seasonally flooded, mainly in the spring when rainfall amounts are highest. This wetland is fed by a Riverine wetland from the south; a Riverine wetland also extends north from this wetland. The third is a Palustrine wetland located approximately 180 feet south of the project area on the south side of an unnamed road that runs along the southern boundary of the WMMSC. This wetland is approximately 5 acres in size and is fed from a Riverine wetland to the south.

3.5 CULTURAL RESOURCES

Cultural resources are archaeological, historical, and Native American items, places, or events considered important to a culture, community, tradition, religion, or science. Archaeological and historic resources are locations where human activity measurably altered the earth or left deposits of physical or biological remains. Prehistoric examples include arrowheads, rock scatterings, and village remains, whereas historic resources generally include campsites, roads, fences, homesteads, trails, and battlegrounds. Architectural examples of historic resources include bridges, buildings, canals, and other structures of historic or aesthetic value. Native American resources can include tribal burial grounds, habitations, religious ceremonial areas or instruments, or anything considered essential for the persistence of their traditional culture.

The Air Force conducted an inventory of Malmstrom AFB in 1996 to identify Cold War resources important to the base's history. The report identified two missile facilities (Alpha-01 and Alpha-06) as eligible for listing on the National Register of Historic Places (NRHP), four buildings (numbers 250, 300, 1700, and 1708) as potentially eligible, and six buildings (numbers 500, 769, 1460, 1464, 1705, and 1710) that may warrant nomination pending further research. None of these sites are within the WMMSC project area.

A segment of the Chicago, Milwaukee, St. Paul, and Pacific Railroad (now Burlington Northern) extends across a portion of the northern perimeter of the base. This historic feature was inventoried and evaluated and found to represent a segment of the railroad line constructed across Montana during 1906-1909 that helped the Euro-American settlement of the region (USAF, 2000f; USAF, 1995). This site may be eligible for the NRHP based on its role in the Euro-American settlement of the region.

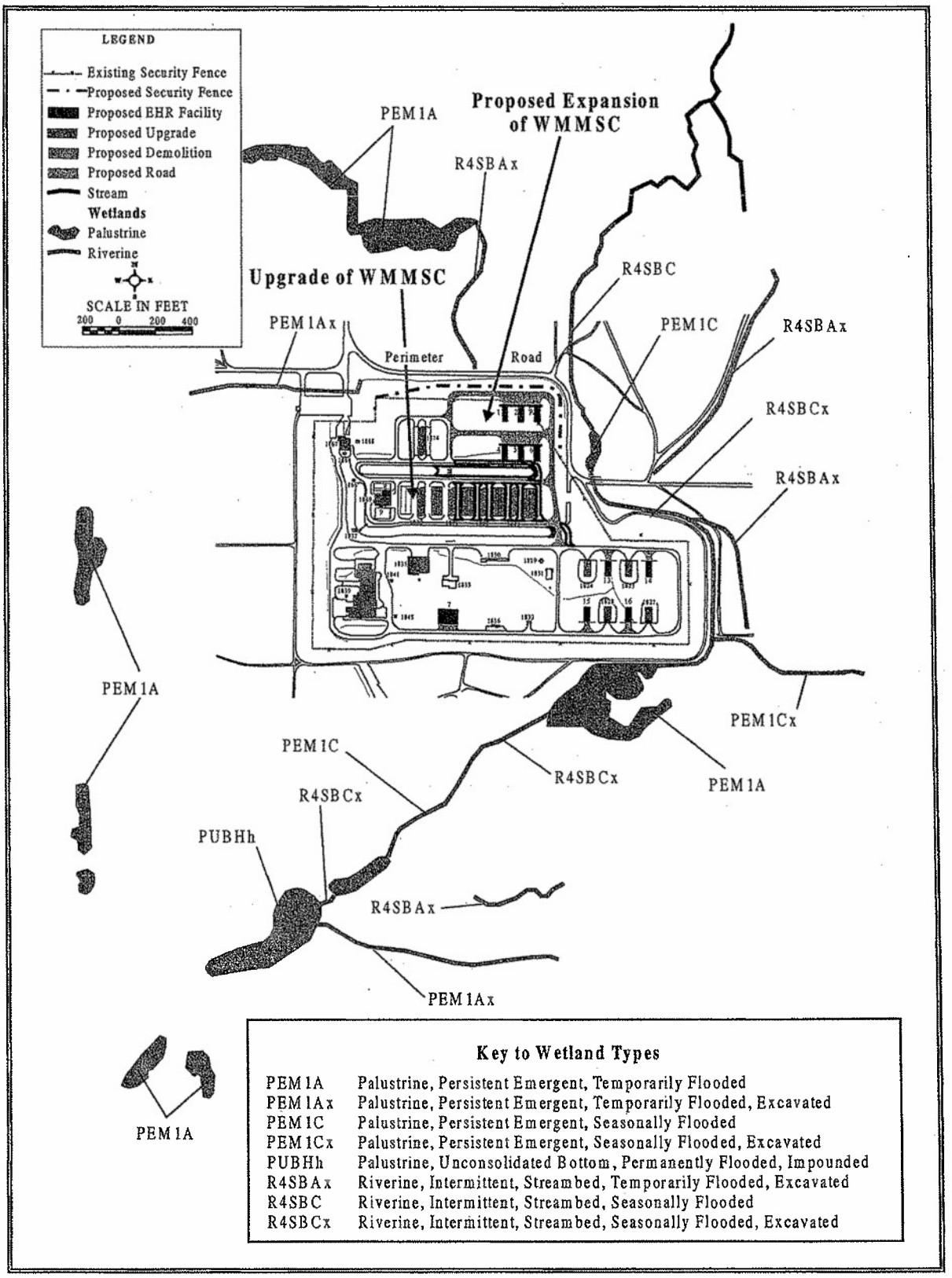


Figure 3.4-1 Wetlands in the Vicinity of the WMMSC

The Lewis and Clark/Great Falls Portage is a National Historic Landmark covering 7,700 acres of noncontiguous lands. The Landmark was established to recognize the portage route of the 1804 Lewis and Clark expedition. Although the portage extends across the base, none of the lands within the boundaries of the Landmark are found on Malmstrom AFB, nor is it recommended that any land on the base be added to the Landmark (USAF, 2000f; USAF, 1995).

The Air Force conducted an archaeological survey in 1994 that resulted in one prehistoric or ethnohistoric archaeological site that comprises a small surface lithic scatter and other isolated possible waste flakes of the prehistoric or ethnohistoric period. Neither the site nor the isolated remains are in the project area or recommended as eligible for the NRHP (USAF, 2000f; USAF, 1995).

3.6 NOISE

Noise is defined as any unwanted sound that interferes with normal activities or in some way reduces the quality of the environment. Ambient noise levels vary greatly in magnitude and character from one location to another, depending on the normal activities conducted in the area. In general, noise levels around Air Force installations result primarily from aircraft operations.

3.6.1 Noise Descriptors

Community response to noise is not based on a single event, but on a series of events over the day. Factors that have been found to affect the subjective assessment of the daily noise environment include the noise levels of individual events, the number of events per day, and the time of day at which the events occur. Most environmental descriptors of noise are based on these three factors, although they may differ considerably in the manner in which the factors are taken into account.

A decibel (dB) is the physical unit commonly used to describe sound levels. Sound measurement is further refined by using an "A-weighted" decibel (dBA) scale that emphasizes the audio frequency response curve audible to the human ear. Thus, the dBA measurement more closely describes how a person perceives sound. For example, typical noise levels include: a quiet urban nighttime (40 dBA), an air conditioner operating 100 feet away (55 dBA), and a heavy truck moving 50 feet away (85 dBA). Table 3.6-1 shows noise levels for various human activities, while Table 3.6-2 provides approximate sound levels for various types of construction equipment.

Equipment noise is normally measured over an 8-hour time period, using the equivalent sound level (L_{eq}). The L_{eq} is obtained by averaging dBA sound levels over a selected time period. Another descriptor of a noise environment over extended periods of hours or days is the day-night average sound level (L_{dn}). To compute an L_{dn}, single noise events are measured using an A-weighted scale with corrections added for the number of events and the time of day. A 10-dB penalty is added for noise that occurs between the hours of 10 p.m. and 7 a.m. because nighttime noise events are considered more annoying than noise occurring during daytime. The L_{dn} descriptor is accepted by federal agencies, including the Air Force, as a standard for estimating noise impact and establishing guidelines for compatible land uses.

Table 3.6-1 Typical Decibel Levels Encountered in the Environment and Industry			
Sound Level (dBA)	**Maximum Exposure Limits**	**Source of Noise**	**Subjective Impression**
10			Threshold of hearing
20		Still recording studio; Rustling leaves	
30		Quiet bedroom	
35		Soft whisper at 5 feet; Typical library	
40		Quiet urban setting (nighttime); Normal level in home	Threshold of quiet
45		Large transformer at 200 ft	
50		Private business office; Light traffic at 100 ft; Quiet urban setting (daytime)	
55		Window air conditioner; Men's clothing department in store	Desirable limit for outdoor residential area use (EPA)
60		Conversational speech; Data processing center	
65		Busy restaurant; Automobile at 100 ft	Acceptable level for residential land use
70		Vacuum cleaner in home; Freight train at 100 ft.	Threshold of moderately loud
75		Freeway at 10 ft	
80		Ringing alarm clock at 2 ft; Kitchen garbage disposal; Loud orchestral music in large room	Most residents annoyed
85		Printing press; Boiler room; Heavy truck at 50 ft	Threshold of hearing damage for prolonged exposure
90	8 hr	Heavy city traffic	
95	4 hr	Freight train at 50 ft; Home lawn mower	
100	2 hr	Pile driver at 50 ft; Heavy diesel equipment at 25 ft	Threshold of very loud
105	1 hr	Banging on steel plate; Air hammer	
110	0.5 hr	Rock music concert; Turbine condenser	
115	0.25 hr	Jet plane overhead at 500 ft	
120	< 0.25 hr	Jet plane taking off at 200 ft	Threshold of pain
135	< 0.25 hr	Civil defense siren at 100 ft	Threshold of extremely loud
Source: U.S. Army, 1978			

Noise generated near the ground generally attenuates 6 dB for each doubling of distance from a noise source; trees and terrain would further increase attenuation. Noise generated further above ground (above 50 ft) generally attenuates about 2 dB for every doubling of distance.

Table 3.6-2 Approximate Sound Levels (dBA) of Construction Equipment						
	Sound Levels (dBA) at Various Distances (ft)					
Equipment Type	50	100	200	400	800	1,600
Front-end Loader	84	78	72	66	60	54
Dump Truck	83	77	71	65	59	53
Truck	83	77	71	65	59	53
Tractor	84	78	72	66	58	52
Sources: Thumann, 1976; U.S. Army, 1978						

3.6.2 Existing Noise Conditions

Major sources for ambient sound levels on Malmstrom AFB include traffic on base roads, and helicopter activities that operate out of the helicopter parking apron at the north end of the airfield. Helicopter operations take place between the hours of 7:00 a.m. and 10:00 p.m. The 40th Helicopter Flight uses the UH-1N Iroquois helicopter to perform security response for the missile field, aerial convoy surveillance and priority airlift support for missile maintenance, and operations. The base runway is closed and not currently used for fixed-wing flying operations. Noise produced by helicopters during takeoff and landing operations results in greater noise impacts than ground traffic. These noises fall within a broad range of "transient" noises, which come and go in a finite period of time. Noise effects from helicopters are obvious along the flight path because of the lower altitude of operations and the minimal time involved in takeoff and landing. Noise levels associated with overflight of UH-1N helicopters at 1,000 feet above ground level are approximately 90 dBA within 1,000 feet to either side of the flight path (U.S. Army, 1992). These noise levels from overflights occur for about 20 seconds. Other sources of noise in the vicinity of Malmstrom AFB include vehicular traffic, construction, and equipment operation. Except for helicopter operations that cause noise levels in excess of 85 dBA, other noise levels on Malmstrom AFB generally range less than 65 dBA, which is typical of an urban area. The project area is located in the eastern portion of the base which experiences an average day-night sound level less than 65 dBA. The main source of noise in the project area is from vehicle traffic.

Although Malmstrom AFB does not have an Air Force Air Installation Compatible Use Zone (AICUZ) program, the base applies airfield safety criteria defined in Air Force Manual (AFMAN) 32-2311, *Airfield and Heliport Planning and Design Criteria*, when planning new development. AFMAN 32-2311 outlines detailed planning and design criteria and standards for airfields; these criteria and standards include dimensions, clearances, and grades for airfield operational areas. Although the runway is not operational for fixed-wing aircraft, the base continues to observe the constraints imposed by these criteria to protect the airfield and surrounding areas for mission expansion. The base also works closely with the City of Great Falls and Cascade County to evaluate and learn about development proposals that could affect the base airfield.

3.6.3 Noise Sensitive Receptors

A noise sensitive receptor is commonly defined as the occupants of any facility where a state of quietness is a basis for use, such as a residence, hospital, or church. The project area is on the east side of the runway away from the main base facilities and not near any sensitive receptors.

3.7 SOCIOECONOMICS

Socioeconomic resources are described in this section using employment, income, and demographic measures. Economic and demographic elements are key factors influencing changes in demand for goods and services within a local economy.

3.7.1 Location and Region of Influence

Malmstrom AFB is located in Cascade County in west central Montana, at the eastern edge of the city of Great Falls, as shown in Figure 1.3-1. Cascade County comprises the Great Falls Metropolitan Statistical Area (MSA).[1]

The socioeconomic region of influence (ROI) for an analysis of this type is generally defined by the residence patterns of installation personnel and by the number of incoming personnel associated with the action under consideration. However, no personnel changes are associated with the Proposed Action or any alternative action, and the construction labor force is expected to be drawn from the local area. For this reason, Cascade County is defined as the ROI. Since no incoming personnel are expected, the local housing market, schools, community services, and infrastructure will not be discussed in this document. The latest available data that are reliable, and consistent and comparable with earlier data, are used in the discussion.

3.7.2 Employment and Income

Cascade County experienced almost no employment growth during the 1980s, with employment increasing by only 1 percent, compared to a 10 percent increase for the State of Montana and a 22 percent increase for the United States. However, between 1990 and 1997, employment for the county increased by more than 9 percent, while state employment growth was more than double that amount at 19 percent. Total employment in Cascade County was approximately 49,000 in 1997, the latest year for which comparable employment data are available (U.S. Bureau of Economic Analysis, 2000).

Cascade County's economy is concentrated in the services and retail sectors, which account for 32 and 22 percent of total employment, respectively. The government sector accounts for one-fifth of county employment, and is divided among federal civilian employment (16 percent), military (43 percent), and state and local (41 percent). The

[1] An MSA is a geographic area consisting of a relatively large population nucleus, together with adjacent communities having a high degree of economic and social integration with the nucleus. The MSAs are defined by the federal government and are used for statistical purposes.

finance, insurance, and real estate sector accounts for 8 percent, and the remaining sectors are quite small (U.S. Bureau of Economic Analysis, 2000).

Total personal income in Cascade County was $1.7 billion in 1997. Per capita income (PCI) for the same year was approximately $21,630, roughly 85 percent of the United States average PCI and 110 percent of the Montana average (U.S. Bureau of Economic Analysis, 2000).

The City of Great Falls issues building permits for all types of buildings, while the State of Montana issues building permits for non-residential structures outside of cities that issue permits. The dollar value of construction permits in the City of Great Falls totaled $51.3 million in 1999 (Guinan, 2000). Year-to-date (January through August) permit valuations for 2000 are approximately 8 percent higher than the valuations through August in 1999, resulting in an estimated valuation of $55.4 million in 2000. The year-to-date (through August 20) value of commercial permits for 2000 in Cascade County (excluding the City of Great Falls) is $1.8 million, while valuations totaled $1.9 mil in 1999 and $3.1 million in 1998 (Hattersley, 2000).

The average unemployment rate for 1999 in Cascade County was 5.3 percent, while Montana's was 5.2 percent. In comparison, the U.S. unemployment rate for the same period was approximately 4.0 percent (Montana Department of Labor & Industry, 2000). The county unemployment rate suggests that there would be an adequate construction work force in the local area to meet the needs of the WMMSC project.

3.7.3 Population

Population in Cascade County declined slightly during the 1980s but has grown by approximately 1 percent during the 1990s. In the State of Montana, population remained almost constant during the 1980s, then increased by nearly 9 percent during the 1990s. Cascade County had a 1997 population of approximately 79,150, while Montana's population was nearly 879,000 (U.S. Bureau of the Census, 2000).

3.8 ENVIRONMENTAL JUSTICE

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was signed by the President on February 19, 1994. This EO requires that each federal agency identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. In order to evaluate these potential effects, demographic data on minority and low-income populations are provided in this section.

The environmental justice ROI, also known as the community of comparison, is the same as for socioeconomic resources, Cascade County. The 1990 Census found that the population of Cascade County was more than 93 percent Caucasian, 4 percent Native American, 1.4 percent African-American, and 1 percent Asian, with Other comprising less than 1 percent of the total. Persons of Hispanic origin, who can be any race, make up 1.8 percent of the county population. In comparison, Montana's population is nearly 93 percent Caucasian and 6 percent Native American, with African-American, Asian, and

Other comprising the remaining approximately 1 percent. Hispanic persons make up only 1.5 percent of the state's population.

Nearly 14 percent of the county's population is below the poverty level, while 16 percent of the state's population and nearly 13 percent of the U.S. population fall into this category (U.S. Bureau of the Census, 2000).

There are very few residences along Malmstrom AFB's eastern boundary, near the WMMSC, and no concentrations of low-income or minority populations are found there.

3.9 TRANSPORTATION

Transportation systems facilitate the movement of people, goods, and materials on the ground, on water, or through the air. For transportation systems to be adequate, users must be able to reach their destination within reasonable limits of time, cost, and convenience. The proposed project addressed in this EA would impact only ground transportation. Other modes of transportation, including helicopter flights, are not assessed as part of this EA. The transportation system discussed in this EA includes a network of roads and the two gates providing access to the base.

3.9.1 Existing Conditions

Interstate 15 and U.S. Highways 87 and 89 provide access to Great Falls and Malmstrom AFB. Malmstrom AFB can be accessed from the west by the Main Gate via 2nd Avenue or by the Commercial Gate via 10th Avenue. The streets are shown in Figures 1.3-1 and 2.1-1. The Main Gate handles approximately 65 percent of all base traffic, while the Commercial Gate handles the remaining 35 percent (Staudinger, 2000). Both gates are open 24 hours with approximately 9,800 vehicles entering and exiting the base daily.

Traffic flow on base is generally good; however, delays do occur at the Main Gate during morning peak hours and periodically along Goddard Drive and the Commercial Gate during peak periods. Peak traffic periods are from 6:00 to 8:00 a.m. and from 4:00 to 6:00 p.m.

Perimeter Road is the arterial route that connects the Main and Commercial Gates with the eastern portion of the base. Local streets in the vicinity of the Proposed Action and Implementation Alternative include Missile Drive, West Storage Road, East Storage Road, North Storage Road, Middle Storage Road, and South Storage Road (see Figure 2.1-2). Vehicle traffic is minimal in the proposed project area, the area supports approximately 60 personnel (Staudinger, 2000).

A proposal to redesign and move the Commercial Gate to include the new housing area within the perimeter of the base is planned for the FY 2001 timeframe.

3.10 ENVIRONMENTAL PROGRAMS

The environmental programs at Malmstrom AFB include: asbestos; lead-based paint (LBP); hazardous material and hazardous waste management; polychlorinated biphenyls (PCB); the Installation Restoration Program (IRP); solid waste; USTs; wastewater; and storm water. The Environmental Flight is responsible for managing most components of these programs. Human health and safety is addressed through requirements in the

environmental programs, and is also protected through Wing Safety. All programs are managed in accordance with applicable federal, state, local, and DoD, and Air Force Instructions, standards, laws, and regulations that apply to the installation. The project area does not contain and the project will not include USTs; therefore, this program will not be discussed or analyzed in this assessment. Only the environmental programs that may be impacted by the Proposed Action (health and safety, asbestos, LBP, PCBs, hazardous materials and hazardous wastes, IRP, solid waste, wastewater, and storm water) are described in detail in this section and analyzed in Chapter 4.

3.10.1 Health and Safety Issues

Human health and safety issues involve both Air Force personnel and the general public. Safety issues include injuries or deaths that are usually the result of one-time accidents. Injuries include direct impacts to humans, resulting, for example, from exposures to toxic chemicals, radiation, radiant heat, or overpressures from explosions. Injuries require medical treatment or hospitalization. Other health issues can arise when people are impacted over a long period of time (in cases such as cancer or asbestosis) rather than immediately. Most of the project activities would include demolition, upgrade of existing facilities, and construction of new facilities. These operations would be routine (including confined space operations) and would not include unique operations or hazards.

Both the Malmstrom AFB Safety Office and Bioenvironmental Engineering Office review safety issues. The Air Force has formal safety programs addressing construction operations that provide detailed safety requirements. In addition, contractors must submit a safety plan and are responsible for all aspects of the safety and health of their employees. Safety plans must conform to 29 CFR Part 1910 (Occupational Safety and Health Standards) and Part 1926 (Safety and Health Regulations for Construction). Contractors must also comply with Air Force Occupational Safety and Health (AFOSH) Standards.

Reentry systems are tightly sealed and designed to prevent leaks of radioactive material. The radioactive material within the warheads continuously emits ionizing radiation in the form of alpha and beta particles, gamma rays and X-rays, and neutrons at a very low rate as measured at a distance of three feet from the reentry systems. There is virtually no radiation emitted past three feet. By comparison, background terrestrial radiation from rocks and soils is approximately 28 millirems (mrem) per year (0.003 mrem per hour) in Montana (NCRP, 1987). Other natural sources from the environment (such as cosmic radiation and radon) would add another 272 mrem per year, for a total of 300 mrem per year (0.03 mrem per hour).

Nuclear safety for handling, maintenance, and transportation of components is regulated under Air Force Policy Directive 91-1 and AFIs 91-101, 91-102, and 91-114. The storage of nuclear weapons is also regulated under AFIs 31-101, 91-116, and Department of Defense Directive C-5210.41-M. Specific technical orders also cover every aspect of handling, maintenance, and transportation of nuclear weapon components. There have not been any instances where workers have exceeded the allowable occupational dose of five rems per year (Dorton, 2000).

Quantity-distance zones have been established for explosive safety in the vicinity of the WMMSC. Inhabited buildings are limited to mission requirements within these zones. These are regulated under AFMAN 91-201, *Explosive Safety Standards*.

The WMMSC is currently operating under restrictions for the numbers of weapon systems stored within the facility in order to meet safety requirements. The aging facilities are not able to efficiently handle modern weapon systems.

3.10.2 Asbestos

Asbestos is a regulated substance because it is a known carcinogen and a cause of asbestosis (a lung disease). Asbestos is a designated hazardous air pollutant under the National Emission Standards for Hazardous Air Pollutants (NESHAP) of the CAA. USEPA issues regulations to ensure compliance with the CAA, and has delegated compliance with the CAA to the State of Montana.

Friable ACM, which can be pre-existing or generated during a demolition or renovation activity, refers to any material containing more than one percent asbestos that can be crumbled, pulverized, or reduced to powder when dry, by using hand pressure or similar mechanical pressure.

When asbestos poses a health danger from the release of airborne fibers (because it is in a friable state), Air Force policy (AFI 32-1052, *Facility Asbestos Management*) is to remove or isolate it. After demolition or renovation, and before a site can be considered environmentally safe for a real estate transaction (subject to the provisions of the *Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC 9601 et seq.)*, all friable asbestos must be encapsulated or removed, the site must be approved, and the asbestos waste disposed of in an approved landfill.

The Civil Engineering Squadron/Environmental Flight and the Bioenvironmental Engineering Flight manage most aspects of asbestos remediation. The base maintains Asbestos Inspection Reports, asbestos work orders, notification records, bulk and air sampling results, asbestos registry, training and certification records, and disposal documents. Asbestos hazard awareness training is provided for base employees involved with construction projects containing asbestos.

At Malmstrom AFB, ACM is generated during remediation operations conducted for building renovations or demolition. A basewide survey for friable ACM was completed prior to December 1991 (USAF, 1996a). The base has conducted limited surveys at several buildings proposed for demolition and upgrade under the Proposed Action, and are asbestos free. An inspection of Bldgs 1840 and 1867 did reveal the presence of ACM. At Bldg 1840, a survey was conducted and limited to the west exterior and interior wall of the building. Two homogenous areas of ACM were identified. The transite wall panels (west wall of south bay) contain Regulated Asbestos Containing Materials (RACM), and mudded pipe fittings (west wall of north bay) contain ACM. Additional suspect asbestos is located in the east side hall of Bay 1, in the pipe insulation on the overhead piping, and a fiber board located approximately 10 feet above the east floor of Bay 5. A survey of Bldg 1867 revealed that the 12-inch x 12-inch floor tile in room 107 also contained asbestos.

Additional limited surveys have been conducted at the WMMSC: roofing at Bldgs 1869, 1870, 1871, 1872, 1873, and 1874; boiler flashing material and insulation at Bldgs 1867 and 1869; and water pipes at Bldg 1869. Surveys of these areas indicated that no asbestos was present.

3.10.3 Lead-Based Paint

Lead-based paint can be hazardous when dust or chips are generated from deteriorating paint or during removal (e.g., sanding off old paint). Lead exposure (which can result from ingesting paint dust or chips, or from inhaling lead vapors from torch cutting operations) can affect the human nervous system at low levels. Lead is especially hazardous to children due to their small size and developing nervous system. Air Force policy states that workers subjected to prolonged or repeated exposure to airborne LBP dust are working in a hazardous environment. Occupational Safety and Health Administration (OSHA) Standard for lead in the construction industry applies to all construction work where an employee may be occupationally exposed to lead (29 CFR 1926.62). OSHA does not recognize a minimum concentration of lead; all painted surfaces in which any detectable level of lead is present, must be considered as having the potential to present an occupational exposure to lead to an employee engaged in OSHA regulated construction work.

Malmstrom AFB provides on-site training for workers involved in LBP removal. To ensure adequate worker protection and proper waste materials disposal, proposed and/or scheduled renovation and demolition sites are screened and sampled for LBP. If the LBP would be disturbed and needs to be removed, it is removed by trained and certified abatement personnel, and the resultant waste sampled for hazardous constituents. If the waste is hazardous, based on the Toxicity Characteristic Leaching Procedure, it is removed and disposed of as a hazardous waste. All housing occupants are informed of the potential presence of LBP in their quarters, along with instructions for reducing the potential for lead exposure (USAF, 1996b).

Malmstrom has conducted a limited LBP survey of Bldg 1840 in 1998. Other buildings at the WMMSC would be sampled prior to renovation or demolition. Paint samples were collected (west exterior and interior surfaces only) of Bldg 1840; several paint samples containing lead were collected from the walls, floors, and doors of rooms 100, 101, and 102. Ten homogenous areas of LBP were found in the floor paint west of the south bay, a metal door frame on the exterior west wall of the south bay, metal strips on the west wall of the south bay, the north metal wall of the south bay, metal doors and metal door frames near the north and south bays, a metal roll-up door frame on the exterior of the north bay, and an exterior concrete traffic bollard of the west wall.

3.10.4 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCB) are suspected human carcinogens. Improper handling of PCB items or releases of PCBs could have adverse effects on human health and the environment. PCBs must be handled, stored, and disposed of in accordance with regulations (40 CFR § 761) promulgated under the *Toxic Substances Control Act* (TSCA). Personnel from the Environmental Flight, Bioenvironmental Flight, and Maintenance Engineering offices manage PCBs. Documents and files are maintained at

Malmstrom AFB, including past PCB documentation. Disposal manifests are also maintained at the installation for any PCB-containing materials disposed of at an approved landfill (Verzuh, 2000).

Malmstrom AFB maintains an inventory of all transformers containing PCBs. According to the regulations noted above, a "PCB transformer" contains PCBs at concentrations of 500 ppm or greater; a "PCB-contaminated transformer" contains PCBs at concentrations from 50 to 499 ppm; and a "non-PCB transformer" contains PCBs at concentrations less than 50 ppm. There are no PCB transformers or PCB-contaminated transformers at Malmstrom AFB (Verzuh, 2000). There were three non-PCB transformers with PCBs at concentrations less than 2 ppm located at the WMMSC, but these were recently replaced (Staudinger, 2000).

Capacitors suspected of containing PCBs are found at Malmstrom AFB. Light ballasts, which are usually sealed, may also contain PCBs. No inventory records are maintained at the installation for capacitors or light ballasts; however, unless clearly identified as non-PCB, they are handled as potentially containing PCBs (Verzuh, 2000). Due to the age of the WSA facilities, PCB-containing ballasts and capacitors may be encountered during demolition or upgrade activities (Verzuh, 2000). Any PCB-containing light ballasts and capacitors that are removed from service due to failure or routine maintenance are collected, turned in to the Defense Reutilization and Marketing Office (DRMO) at Malmstrom AFB, and disposed of in accordance with State and Federal regulations.

3.10.5 Hazardous Materials and Waste Management

Hazardous materials are substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present a substantial danger to public health or the environment if released. Typical hazardous materials include reactive materials such as explosives, ignitables, toxics (such as pesticides), and corrosives (such as battery acid). When improperly stored, transported, or otherwise managed, hazardous materials can significantly affect human health and safety and the environment.

Hazardous materials management at Malmstrom AFB is accomplished in accordance with the Department of Defense (DoD) Directive 4210.15 *(Hazardous Materials Pollution Prevention),* AFI 32-7086 *(Hazardous Materials Management),* and AFI 32-7080 *(Pollution Prevention Program),* all of which incorporate the requirements of all federal regulations, AFIs, and DoD Directives for the reduction of hazardous material uses and purchases. EO 12088, *Federal Compliance with Pollution Control Standards,* under the authority of the USEPA, requires that necessary actions are taken for the prevention, management, and abatement of environmental pollution from hazardous materials due to federal facility activities.

Generally, a hazardous waste is generated when a hazardous material is spilled, spent, or contaminated to the extent that it can not be used for its original purpose, or cannot be converted to a usable product. The *Resource Conservation and Recovery Act* (RCRA) (42 USC 6961) and the *Montana Hazardous Waste Act* (Title 75, Chap 10-401, MCA) impose designs and operating standards to ensure that hazardous wastes are managed

properly to prevent future uncontrolled situations. At Malmstrom AFB, hazardous wastes are managed by the Environmental Flight (341 CES/CEV).

Hazardous wastes are generated at Malmstrom AFB during daily routine operations and maintenance activities. The wastes are collected at the generation site or taken by the end of the day to an accumulation point. The containerized hazardous waste is then transported to the centralized waste accumulation site on the base for temporary storage for up to 90 days. The containerized waste is stored, removed, and disposed of from the base through the DRMO.

In 1997, Malmstrom AFB generated 15 tons of hazardous waste (Morris, 2000). All buildings storing hazardous materials have some type of spill containment. At minimum, drip pans and absorbent material are used. The maintenance shop of the WMMSC area uses paint, lubricants, adhesive, toluene, isopropyl alcohol, p-nitro, and grease. Cloth rags are used to wipe up excess materials, and sometimes can become a hazardous waste. Several gallons of waste is generated every few months. The floor drains of all buildings at the WMMSC that handle petroleum, oils, and lubricants (POL) products have been plugged to prevent leaks and spills from reaching any water.

The Hazardous Materials Pharmacy functions as a centralized clearinghouse for receipt, storage, and distribution of hazardous materials for use on base. Bldg 1869 contains hazardous materials (primarily paint in 12- to 16-ounce spray cans); any hazardous wastes generated would be hand-carried to the 90-day satellite accumulation point at Bldg 1840 for proper disposal. Bldg 1840 stores hazardous materials such as monomethyl hydrazine (MMH) and nitrogen tetroxide (these substances are stored in the propulsion system rocket engine of the MM III missile), paints, oils, greases, adhesives, and solvents. There are separate storage compartments for hazardous waste, corrosive material, corrosive waste, hazardous material, mixed waste, and low-level radioactive waste (LLRW). The small quantities of paints, oils, greases, adhesives, and solvents are stored in a 60-gallon flammable storage locker with a liquid-tight, two-inch bottom well for secondary containment. Hazardous wastes derived from missile maintenance operations are stored in approved metal drum containers with locking rings inside an approved flammable locker designated for waste materials only (USAF, 1998a). Once a container gets 50 percent full, it is turned into Bioenvironmental Engineering; the exceptions are the containers of LLRW and mixed waste that have been accumulating for several years until disposition is determined under Air Force direction.

3.10.6 Installation Restoration Program

The DoD's *Defense Environmental Restoration Program (AFI 32-7020),* requires installations to identify, confirm, quantify, and remediate suspected problems associated with past hazardous material disposal sites. *CERCLA, as amended by the Superfund Amendments and Reauthorization Act (42 USC 9601 et seq.)* provides Federal agencies with the authority to inventory, investigate, and clean up uncontrolled or abandoned hazardous waste sites. Areas that may be contaminated by hazardous materials or wastes through spills or leaks are being investigated and cleaned up through the IRP. The IRP is the Air Force's CERCLA-based environmental restoration program. At Malmstrom AFB, the restoration activities conducted by the IRP are regulated by the USEPA and

MDEQ in accordance with the RCRA corrective actions Part B permit. The USEPA is in the process of transferring RCRA authority for Malmstrom AFB to Montana.

There are 25 locations on base that have been designated as IRP sites (USAF, 2000f). Each site is in various stages of restoration, ranging from investigation and characterization, to remediation, closure, or long-term monitoring.

There are three IRP sites located within the vicinity of the WMMSC, as shown on Figure 3.10-1. The Conventional Munitions Disposal Site (OT-16) and the Drum Disposal Site south of the WSA (SS-17) are both in the finished phase of restoration (the remedial actions have been completed (Hodges, 2000). OT-16 finished field activities in September 1999 and field operations at SS-17 concluded in 1994. A No Further Response Action Planned (NFRAP) document was prepared for Site SS-17 and signed by Malmstrom AFB's Environmental Protection Committee Chairman. An NFRAP for Site OT-16 is scheduled to be prepared in spring 2001; the USEPA has no more response requirements and the site is considered clean (Duff, 2001). The sites would be closed out with modifications to the Part B Permit (Hodges, 2000). The sites will continue to be listed as RCRA Solid Waste Management Units until the Permit is modified (Duff, 2000).

The third IRP site, a landfill northeast of the WSA (LF-19) remains open to restoration activity. This Class II landfill is approximately 34 acres in size, and was in operation from 1950 to 1978 (USAF, 2000f). This site is also identified as a RCRA Solid Waste Management Unit. Materials disposed of included industrial wastes, munitions, waste oil, antifreeze, and battery acid (USAF, 2000c). Currently, an investigation is being performed to determine whether the abandoned landfill poses a threat to the regional groundwater aquifer. Previous investigations demonstrated low concentrations of Trichloroethylene (TCE) and Dichloroethene (DCE) within the surface water of a small unnamed stream adjacent to the landfill and within a shallow monitoring well (USAF, 1999f). An additional groundwater monitoring well constructed in 1999 showed evidence of TCE (less than 0.001 mg/L) and DCE (less than 0.001 mg/L) under maximum contaminant levels (MCLs). The USEPA National Drinking Water Standards and the State of Montana has set an MCL for TCE at 0.005 mg/L and for DCE at 0.07 mg/L. The presence of chloroform was detected at 0.0026 mg/L, which has a MCL of 0.08 mg/L. Under guidance from the State of Montana, the landfill has been capped with soil and the cover is being re-vegetated with native grasses as part of remediation activities (Hodges, 2000). The cap does not meet RCRA standards. The Air Force will meet with MDEQ officials in 2001 to discuss the state's concerns. A final remedy will not be known until the summer of 2001 and restoration activities may extend past 2002 (Duff, 2001). The presence of these contaminants requires long-term monitoring of groundwater at the landfill.

3.10.7 Solid Waste

The solid waste management program at Malmstrom AFB includes all waste materials that are neither hazardous nor toxic, and which are normally disposed of by landfilling or incineration, or are recycled or recovered. Solid wastes are managed in compliance with RCRA, Subtitle D, and the *Montana Solid Waste Management Act (Title 75, Chap 10,*

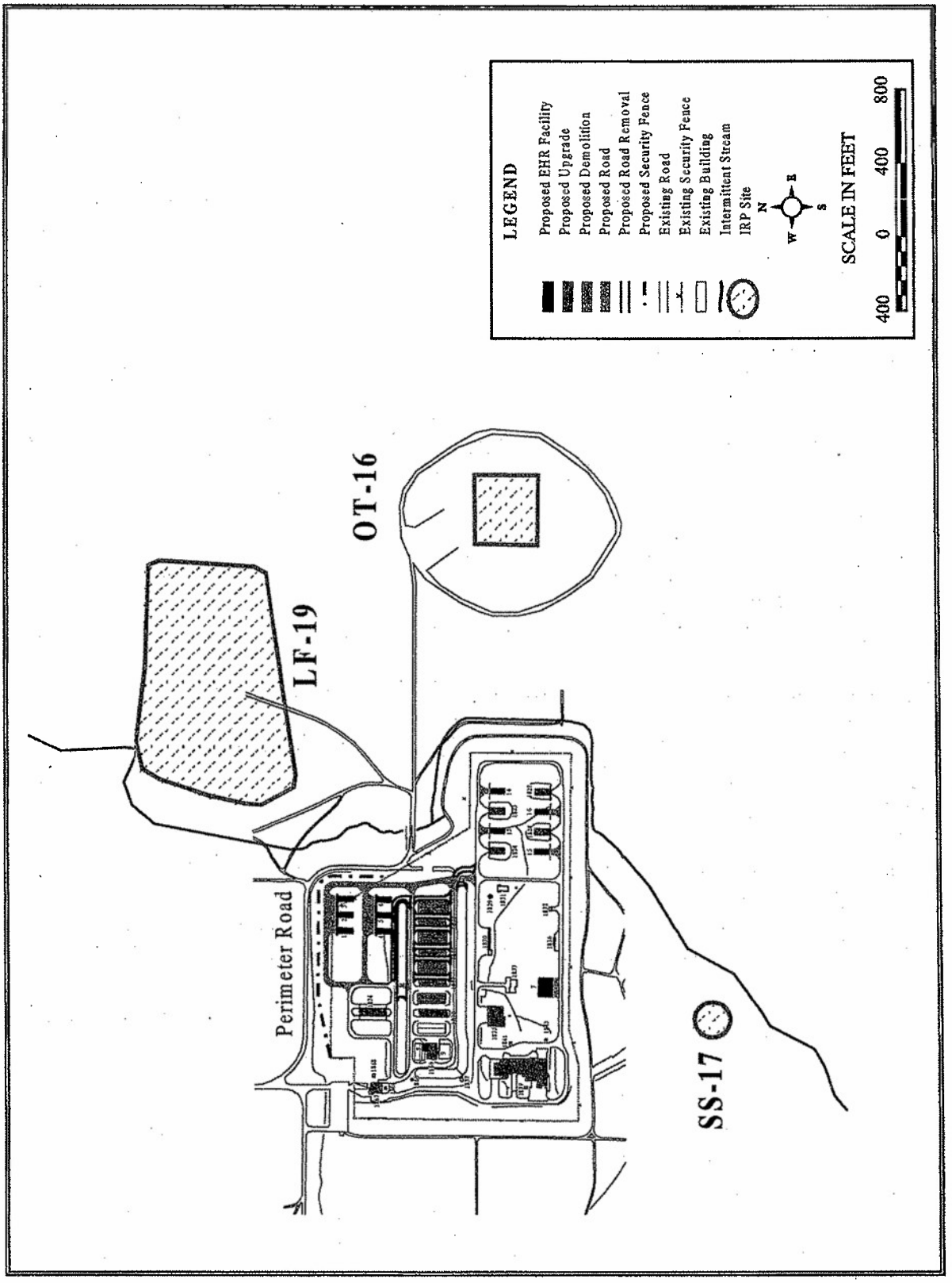


Figure 3.10-1 IRP Sites in the Vicinity of the WMMSC

part 2, MCA). These wastes include non-hazardous trash, garbage, bulky wastes, liquids or sludges, slurries, other types of construction debris, and recoverable or recyclable trash or materials. Solid wastes currently generated at the base are disposed of by a private waste collection and hauling company. Trash dumpsters are scattered throughout the base, including one located just outside the WMMSC. Malmstrom AFB currently generates 4,538 tons of solid waste per year (USAF, 2000e).

Solid waste is disposed of into the High Plains Sanitary Landfill, a commercial landfill operated by the waste collection and hauling contractor. The estimated operating life of the landfill is until calendar year 2036 (USAF, 2000f). Based on the size of the buildings at the WMMSC to be demolished, approximately 2,300 cubic yards of construction debris would need to be removed from the WMMSC and transported and disposed of at the High Plains Sanitary Landfill (see Table 3.10.-1).

Table 3.10-1
Estimated Demolition Debris

Bldg Number	Total Cubic Feet	Total Cubic Yards
1837	1,788	66
1864	904	33
1867	9,232	342
1868	1,110	41
1871	16,354	606
1872	16,354	606
1873	16,354	606
Total	**62,096**	**2,300**

Malmstrom AFB has an active recycling program to reduce the amount of municipal and industrial solid waste generated on base. Items such as white computer and mixed papers, newspaper, cardboard, clear and brown glass, aluminum, plastics, and steel, that are generated at the WMMSC and other base facilities are delivered to the Central Recycling Facility (Bldg 230). Bldg 1869 actively recycles brass cartridges and other munitions. Used oil is accumulated in one of twelve storage tanks throughout the base; no waste oil storage tanks are located at the WMMSC. Private contractors remove all recyclables from the base. Approximately 160 tons of recyclable materials are generated by the base in a year (Phillips, 2000).

There are no open landfills on Malmstrom AFB (USAF, 2000f). Two closed landfills exist on base. One is located off the northeast end of the runway; the other is northeast of the WMMSC, as shown on Figure 3.10-1.

3.10.8 Wastewater

Wastewater treatment for Great Falls and Malmstrom AFB occurs at an activated sludge facility owned by the City of Great Falls and operated under service contract with a private sewage treatment management firm. The facility is currently processing an average of 10 million gallons per day (MGD) and operating at 50 percent of its treatment capacity (USAF, 2000f). Discharges to the Missouri River consistently meet Montana Pollutant Discharge Elimination System permit requirements. The base has a single 1.5

MGD lift station which pumps wastewater. Malmstrom AFB discharged an average of 0.80 MGD to this plant in FY 1997 (USAF, 2000f). The base's sanitary sewer system is adequate to meet current demands as well as supporting moderate growth.

The WMMSC relies on a dual sanitary sewer system. There are two separate sets of lift stations, underground piping, septic tanks, and drain fields. Each system (one each for the MSA and WSA) is independent and moves wastewater north and south, respectively, from the complex. The lift stations are located within the complex and are inspected weekly by the Water Shop to ensure the pumps are in good working order and no signs of leaks or overflow. Recent inspections indicate that the lift stations are not operating efficiently. A minor project is scheduled for next fall to modify the WSA lift station with a pump house to decrease the potential for freezing pipelines (Staudinger, 2000). The wastewater is pumped by the lift stations and released through sediment barriers to the drain fields.

3.10.9 Storm Water

Storm water drainage from Malmstrom AFB flows through a system of underground pipes, ditches, swales, and natural drainages to reach the Missouri River, approximately 1.7 miles north of the base boundary (USAF, 2000f). Six drainage basins have point discharges, which are monitored and sampled annually by the base, in compliance with a storm water permit issued by the MDEQ, Water Quality Bureau. All drainages that have point discharges from Malmstrom AFB flow northerly across open farmland. Under the provisions of the "General Discharge Permit for Storm Water Associated with Industrial Activity", the base holds a Montana Pollution Discharge Eliminator System (MPDES) permit, MTR000197, authorizing the discharge of storm water into the Missouri River. The installation's Storm Water Pollution Prevention Plan (USAF, 1998a), specifies that best management practices, such as annual storm water sampling, are used to minimize the discharge of pollutants into the storm water system.

Drainage Area 5, which has a point discharge, includes runoff from the WMMSC and an inactive landfill (LF-19). There is approximately 1,000 feet of underground storm sewer (concrete pipe and field catch basin) that drains to overland sheet flow (USAF, 1998a). Most storm water in this area either infiltrates into the ground or exits the base in sheet flow. About one percent of the total flow from Malmstrom AFB drains from this area (Verzuh, 2000). Drainage Area 6, which also has a point discharge, includes storm water runoff from the missile handling/maintenance facility, an inactive landfill (LF-19), and Pow-Wow Pond. Most storm water in this area either infiltrates into the ground, collects in natural and man-made retention areas within the drainage, or exits this drainage basin in a well-defined grassed coulee north of the WMMSC. Past sampling activities indicate that runoff is extremely minimal due to the relatively flat conditions and the natural and man-made retention areas.

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

4. ENVIRONMENTAL CONSEQUENCES

This chapter discusses the potential for significant impacts to the human environment as a result of implementing the Proposed Action, Implementation Alternative, or No Action Alternative. As defined in 40 *Code of Federal Regulations* (CFR) §1508.14, the human environment is interpreted to include natural and physical resources, and the relationship of people with those resources. Accordingly, this analysis has focused on identifying types of impacts and estimating their potential significance. This chapter discusses the effects that the Proposed Action, Implementation Alternative, or the No Action Alternative could generate in the environmental resource areas described in Chapter 3.

The concept of "significance" used in this assessment includes consideration of both the context and the intensity or severity of the impact, as defined by 40 CFR §1508.27. Severity of an impact could be based on the magnitude of change, the likelihood of change, the potential for violation of laws or regulations, the context of the impact (both spatial and temporal), degrees of adverse effect to specific concerns such as public health or endangered species, and the resilience of the resource. The basis for determining the significance of impacts to a particular resource is provided when the impacts are discussed. Adverse impacts of a proposed activity are identified as significant or not significant. Significant impacts are effects that are most substantial and should receive the greatest attention in decision making. *No impact* is specified in cases in which a resource would not be affected because certain resource elements (e.g., floodplains, sensitive noise receptors, or low-income or minority populations) are not present in the area of the Proposed Action or an Implementation Alternative. *No impact* could also occur under the No Action Alternative if there were no changes to the existing environment. If a resource would be measurably improved by a proposed activity, a *beneficial* impact was noted.

Impacts can be permanent or long-lasting (long-term), or of short duration (short-term). Short-term impacts occur during construction or immediately afterwards. Although short in duration, such impacts may be obvious and disruptive. For this project, short-term impacts are defined as those lasting about two years (the timeframe for completing the Proposed Action) or less, while long-term impacts last more than two years, extending beyond the construction period.

Significant adverse impacts can be mitigated through avoidance, minimization, remediation, reduction, or compensation. Certain mitigations are required by law. Within each resource area, this document presents any mitigations identified during the analysis, along with best management practices that are necessary or useful to minimize environmental impacts. Mitigations and best management practices assist the project proponents in maintaining compliance with environmental regulations.

This chapter is organized by resource element in the same order as introduced in Chapter 3, except that no section for impacts to the mission of Malmstrom Air Force Base (AFB) is included, as there would be no mission impacts. Each resource section provides a discussion of the environmental impacts to that resource. Also included is a description of the analysis methods and the potential impacts of the Proposed Action, Implementation Alternative, and No Action Alternative, including suggested best

management practices, if applicable. Lastly, mitigation measures are presented. In accordance with 40 CFR § 1502.16, the chapter concludes with a discussion of the compatibility of the Proposed Action with objectives of federal, state, and local land use plans, policies, and controls, an evaluation of the relationships between short-term uses of the environment and long-term productivity, cumulative impacts, and irreversible and irretrievable commitments of resources.

4.1. AIR QUALITY

The Proposed Action would have short-term adverse, but not significant, impacts on air quality generated by heavy equipment and earth-moving activities during demolition and construction. No significant air quality impacts would result from operation of the facilities. Impacts from the Implementation Alternative would also not be significant, but would be greater than impacts generated from the Proposed Action. Under the No Action Alternative, emissions from repair activities would likely increase slightly over past levels as facilities would require more repairs in the future. Due to climatic conditions, however, air quality would not be noticeably affected, and no significant impacts would occur.

4.1.1. Analysis Methods

The analysis was based on a review of existing air quality in the region, information on Malmstrom AFB air emission sources, projections of emissions from the proposed activities, a review of state permit requirements for construction estimates, and the use of air emission factors from the USEPA or similar sources. Impacts were evaluated based on the predicted emissions and comparison to air quality standards.

4.1.2. Potential Impacts of the Proposed Action

There would be increased emissions from the use of heavy equipment and worker vehicles during the demolition, reconstruction, and upgrade of the WMMSC, but there would be no significant impacts to air quality because no Federal, state, or local pollution standard or regulation would be violated. Construction is estimated to continue for approximately 2 years. Heavy construction equipment would generate the most emissions, with carbon dioxide (CO), nitrogen oxides (NO_X), and volatile organic compounds (VOC) as the main constituents of exhaust, and earth-moving operations would generate fugitive dust (measured as particular matter equal to or less than 10 microns in diameter (PM_{10})).

Although construction-related emissions are generally exempt from federal regulatory review, USEPA still requires that such activities not exceed the NAAQS. The MAAQS are generally more stringent than the NAAQS (see Table 3.1-1). Emissions from upgrading the WMMSC were estimated using EPA emission factors. The types of equipment likely to be used include bulldozers, dump trucks, excavator, backhoe, crane, water truck, concrete paver, and concrete truck. Estimates of emissions from worker vehicles were also calculated. The estimated emissions are shown in Table 4.1-1.

Table 4.1-1 Air Pollutant Generation from Construction Activities – Proposed Action (tons per year)					
	VOC	PM_{10}	CO	SO_x	NO_x
Construction emissions	1.13	44.26	7.03	1.33	13.45
Source: Calculated with emission factors from AP-42 (USEPA, 2000b; USEPA, 1985; SCAQMD, 1992).					

The aforementioned equipment would be used to demolish some of the existing facilities, grade sites, and construct new facilities, or upgrade existing ones. Construction debris would be taken to High Plains Landfill, about ten miles northwest of Malmstrom AFB.

Detailed calculations are shown in Appendix B. Because of the small quantity of potential emissions and the generally dispersive meteorological conditions (an average of 10 to 15 mile per hour winds for most of the year), the activities would not exceed or contribute to an exceedance of air quality standards; the impacts would not be significant. No other air pollutants of note would be generated during the Proposed Action.

The construction activities would have an unavoidable short-term impact on air quality. Exhaust emissions from construction equipment and personal vehicles would be generated, and fugitive dust would be generated during the construction. These emissions would not be significant, given the short duration of time for construction, the limited types and quantity of equipment to be used, and the limited area to be disturbed. The contractor would be required to use best management practices to reduce fugitive dust emissions, such as daily watering of the disturbed ground and replacing ground cover in disturbed areas as quickly as possible, as required under Montana particulate emissions regulations (*Administrative Rules of Montana* (ARM) 17.8.308) to reduce the amount of these emissions.

Operation of the new and upgraded facilities would minimally impact air quality. No new stationary sources would be constructed, and upgrades to heating and cooling systems would result in air emissions similar to past levels. These levels would not be significant compared to Prevention of Significant Deterioration (PSD) criteria for Montana.

Radiation levels are at background levels outside of existing storage facilities because of naturally occurring terrestrial and cosmic radiation. Due to the proper construction of the new WMMSC, these levels would not change. Hazardous materials (used in cleaning and maintenance activities) that are considered as hazardous air pollutants (HAP) would be generated in minimal amounts, as they currently are. No changes in emission levels would occur from the Proposed Action, and no significant impacts would occur.

4.1.3. Potential Impacts of the Implementation Alternative

Under this option, the WMMSC would have separate and adjacent Weapons Storage Area (WSA) and Munitions Storage Area (MSA) designated grounds. Much of the construction itemized as part of the Proposed Action would also occur under the Implementation Alternative. Construction would likely occur in phases starting with the MSA. Emissions would be slightly greater under this Alternative as compared to the Proposed Action, as shown in Table 4.1-2, and would not be significant.

Table 4.1-2 Air Pollutant Generation from Construction Activities – Implementation Alternative (tons per year)					
	VOC	PM_{10}	CO	SO_x	NO_x
Construction emissions	1.18	52.27	7.40	1.41	14.24
Source: Calculated with emission factors from AP-42 (USEPA, 2000b; USEPA, 1985; SCAQMD, 1992					

4.1.4. Potential Impacts of the No Action Alternative

Under the No Action Alternative, emissions from repair activities would likely increase slightly over past levels as facilities would require more repairs in the future. Due to climatic conditions, however, air quality would not be noticeably affected, and no significant impacts would occur.

4.1.5. Mitigation Measures

No significant impacts would result from implementing the Proposed Action or Alternatives. No mitigations would be required or are recommended.

4.2. GEOLOGICAL RESOURCES

Geological resources are limited, non-renewable earth resources whose characteristics can easily be degraded by physical disturbances. Impacts to geological resources would result primarily from disturbance of the ground from construction (trenching or excavation) activities. These activities would affect a shallow layer of the underlying geology in some areas. Trenching, excavation, grading, and compaction during construction would directly impact topography and soils. The Proposed Action would result in about 16 acres being disturbed; impacts to soils and the underlying geology would not be significant. Impacts from the Implementation Alternative would be similar to those generated from the Proposed Action, but slightly greater, with approximately 17 acres disturbed; this would not be a significant impact. Geological resources would not be impacted significantly under the No Action Alternative; minor disturbances could occur if excavation is required for continued repairs.

4.2.1. Analysis Methods

The geological resources within the proposed project area were studied to determine the potential impacts from implementing the Proposed Action, Implementation Alternative, or No Action Alternative. Geological studies, a soil survey, previous EAs, and a U.S. Geological Survey (USGS) topographical map were reviewed to characterize the existing environment. Construction activities that could influence geological resources were evaluated to predict the type and magnitude of potential impacts. For example, soil would be disturbed during construction activities. The predicted post-construction environment was compared to the existing environment and the change was evaluated to determine if significant changes in any existing conditions would occur.

4.2.2. Potential Impacts of the Proposed Action

Excavation for the Proposed Action would impact the underlying geological layers to a depth of about 10 feet in limited areas for the lift station upgrade and drainage improvements (Staudinger, 2000). Excavations for buildings and roads would generally be limited to three or four feet. As discussed in Section 3.2, the material underlying soils is mainly unconsolidated alluvium and till to a depth of 50 to 200 feet. As discussed in Section 3.3, the alluvium can contain groundwater at depths of 20 to 40 feet and as shallow as 3 feet in the vicinity of the base. Groundwater at the WMMSC is several feet below the surface and tends to be somewhat higher in the spring. As noted in Section 3.2.2, the seasonal high water table is generally greater than six feet in depth for these soils. Due to the limited area of excavation to ten feet and the replacement of excavated material, impacts to the geologic layers and their hydrogeologic properties would not be significant.

As discussed in Section 3.2.1, there are no major faults at Malmstrom AFB. The nearest faults are 70 to 100 miles away. Malmstrom AFB is located in Zone 2B for potential earthquake damage with slight damage anticipated from any seismic event (USAF, 1992b) with expected magnitudes around of 4.5 on the Richter Scale (VI on the Modified Mercalli Scale). According to the Air Force Seismic Design Criteria, the WMMSC is considered a Category I, Essential Facility, which subjects the buildings to certain seismic adaptations and regulations. Structures designed under the USAF criteria should, in general, be able to:

a. Resist a minor level of earthquake ground motion without damage,

b. Resist a moderate level of earthquake ground motion without structural damage, but possibly experience some nonstructural damage, and

c. Resist a major level of earthquake ground motion having an intensity equal to the strongest either experienced of forecast for the site, without collapse, but possibly with some structural damage.

All new buildings and upgrades would be designed and constructed in accordance with seismic requirements. No significant impacts from seismicity would be anticipated. The Proposed Action would not activate a fault or cause slumping events.

Approximately 16 acres of ground would be affected by grading and construction. Excavation for the lift stations would likely be about 10 feet deep. After the stations are constructed, the area excavated would be refilled, compacted, and revegetated; this process would not significantly affect the topography or drainage in the area.

Soils would be impacted by excavation, grading, and construction of facilities. As areas are excavated, soil would be temporarily stockpiled nearby. The potential for erosion by water ranges from slight (for Lawther soils) to severe (for Hillon soils), depending on the soil type and slope. Best management practices should be implemented to prevent erosion and subsequent siltation of nearby coulees and wetlands. The hazard of wind erosion is slight to moderate in the project area and considerable erosion could occur in exposed and stockpiled soil. As discussed in Section 3.1, best management practices, such as daily watering and revegetating exposed soil at the site as soon as possible, are

required by Montana particulate emissions regulations. Adherence to these regulations would reduce any impacts from erosion. Impacts to soils would not be significant.

Most of the soil underlying the WMMSC has a high shrink-swell potential and low strength. The compaction characteristics of these soils range from poor to fair to good. On-site engineering studies would need to be performed in the design phase of the proposed upgrade prior to construction. Soil would need to be modified to meet design requirements; this would likely involve the use of sand fill to mix with existing soil. Assuming that the top three feet of the soil is modified with about 15 percent sand, about 680 earthmover loads of fill could be required. Existing barriers and berms could be reused. No significant impacts would occur.

4.2.3. Potential Impacts of the Implementation Alternative

Impacts would be similar to those generated by the Proposed Action. Because of the construction of another ECP and administration building, a larger area would be excavated and exposed to potential erosion compared to the Proposed Action. Best management practices, as described under the Proposed Action, would reduce impacts to the soil. The impact of this Alternative would be somewhat greater than the Proposed Action; approximately 17 acres would be disturbed, and fill requirements would be somewhat greater, with about 750 earthmover loads potentially required. However, impacts would still not be significant.

4.2.4. Potential Impacts of the No Action Alternative

Geological resources would not be significantly impacted under the No Action Alternative; minor disturbances could occur if excavation is required for continued repairs.

4.2.5. Mitigation Measures

No significant impacts would result from implementing the Proposed Action or Alternatives, and no mitigations are required or recommended.

4.3. WATER RESOURCES

Direct impacts to water resources would result primarily from disturbing the ground during construction activities and from altering surface hydrology. Impacts to groundwater from excavation would not be significant. No adverse impact to bedrock aquifers would occur because of their extensive depth below the surficial aquifers. The shallow alluvial aquifers would not be significantly impacted. The slight decrease in recharge area would not significantly affect the underlying aquifers. Short-term disturbances from construction activities during the Proposed Action could cause wind or water soil erosion; this could lead to increased sedimentation of nearby surface waters. Implementing best management practices would reduce the potential for erosion and sedimentation. The quality of groundwater and surface water would not be significantly affected. There would be no impacts to floodplains.

Under the Implementation Alternative, impacts from construction would be somewhat more adverse than under the Proposed Action, but still not significant. If the No Action

Alternative would be selected, there would be no change in water resources. Occasional ponding of surface water at the WMMSC would continue. Impacts of the No Action Alternative would not be significant.

4.3.1. Analysis Methods

To establish the potential impacts of the Proposed Action, Implementation Alternative, and No Action Alternative, documents on the hydrology and hydrogeology of the area, construction methods, and final configuration of the proposed upgrade were reviewed. Maps showing topography, watersheds, and base drainage were examined. The review focused on the proximity of the construction site to surface waters, hydrogeology in the project area, and water quality in the local area, and evaluated the effects of the actions with regard to those factors.

4.3.2. Potential Impacts of the Proposed Action

Excavation up to about 10 feet would be required to upgrade the lift stations at the WMMSC. Excavation for pipelines would also be at this depth or shallower. These excavations would have no impact on the groundwater in the bedrock aquifers (which are 100 or more feet below the surface). As discussed in Section 3.3.1, the deep aquifers are confined beneath low permeability layers and are protected from physical disturbance or chemical contamination beneath the WMMSC. The only impacts to groundwater would be to shallow, unconfined groundwater. If excavation penetrated the alluvial aquifers, groundwater yield could decrease. However, these aquifers are scattered throughout the area and excavations to depths of 10 feet would be limited in area. These aquifers are not used as a source of water. Impacts to the alluvial groundwater deposits and water quality would not be significant. The amount of available groundwater would not be affected by the Proposed Action. The water quality would not be degraded to a point where it does not meet state and Federal standards set for its use.

About 16 acres would be impacted by the Proposed Action (about 8 acres per year). A National Pollutant Discharge Elimination System (NPDES) permit for discharge from construction would be required. Soils at the WMMSC are predominantly silty clay to clay loam soils with a slight to moderate potential for wind erosion and a slight to severe potential for water erosion (see Section 3.2.2). There are intermittent drainages within the WMMSC. An intermittent drainage that flows off base is about 150 feet to the east of the proposed expansion of the WMMSC. Any erosive losses to surface waters would affect surface water quality through increased siltation, but impacts would not be significant. The contractor would be responsible for strict adherence to the NPDES permit and the requirements of erosion and sediment control. Best management practices such as sediment barriers, sediment traps, trench boxes, and watering stockpiled soil are required by the State (see Section 3.2) and would reduce the potential for impacting surface waters.

Throughout the project area, slopes are generally two percent or less. Steeper slopes (up to 43 percent) occur along drainage ways. These slopes are heavily vegetated and the hazard of erosion is slight. Runoff would be short-term, and would depend on the amount of rainfall in an event. As discussed in Section 3.3, runoff from the WMMSC (Drainage Basins 5 and 6) is slight except during intense storm events. Rainfall of 0.5

inches or more occurs only nine days per year on average. Runoff and potential siltation would not be significant with use of the best management practices described above. The Proposed Action would not cause a significant amount of total suspended solids to discharge into the Missouri River. Revegetating areas of exposed soil with natural vegetation or grasses after construction would further minimize soil erosion.

After demolition and construction, the impervious area would increase only by about 0.1 acre. If no other changes would occur, the impervious area in Malmstrom AFB's Drainage Basins 5 and 6 would increase from 106.1 acres to 106.2 acres. The slight decrease in recharge area would not significantly affect the underlying aquifers. The increase in runoff would not be significant; the Proposed Action would not generate long-term contributions to off-base erosion since there is negligible storm water flow from Basins 5 and 6, and the increase in impervious area in the basins would be less than 0.1 percent. Surface waters would not incur long-term significant impacts from operating the new and modified facilities as planned under the Proposed Action.

There are no floodplains on base and the Proposed Action would not impact floodplains in the vicinity of the Missouri River.

The Proposed Action would result in a temporary increase in water usage during construction. The water supply is adequate at the base and can provide for moderate growth. Impacts from increased water usage during construction would not be significant. There would be no long-term increase in water usage.

4.3.3. Potential Impacts of the Implementation Alternative

The Implementation Alternative would disturb about 17 acres, as compared to 16 acres under the Proposed Action. A NPDES permit for discharge from construction would be required and the contractor would be responsible for strict adherence to this permit and its requirements for erosion and sediment control. The potential for soil erosion during construction would be slightly higher than the Proposed Action, but not significant. An additional 0.2 acres (compared to the Proposed Action) would become impervious through the addition of pavement and roof area. The increase in runoff would not be significant; the Implementation Alternative would not generate long-term contributions to off-base erosion since there is negligible storm water flow from Basins 5 and 6, and the increase in impervious area in the basins would be less than 0.3 percent.

As discussed in Section 3.3.1, the deep aquifers are confined beneath low permeability layers and are protected from physical disturbance or chemical contamination beneath the WMMSC. The only impacts to groundwater would be to shallow, unconfined groundwater. Floodplains would not be impacted. Water usage requirements would be similar to the Proposed Action. Overall, the impact from this Alternative would be more adverse than the Proposed Action, but still not significant.

4.3.4. Potential Impacts of the No Action Alternative

Under the No Action Alternative, there would be no impact to groundwater, surface water, or floodplains. There would continue to be a problem with surface water occasionally collecting and ponding in the WMMSC.

4.3.5. Mitigation Measures

No significant impacts would result from implementing the Proposed Action or Alternatives. No mitigation would be required or is recommended.

4.4. BIOLOGICAL RESOURCES

Impacts to biological resources on Malmstrom AFB would be short-term and would result primarily from activities associated with the upgrade and construction of the WMMSC. Generally, these activities would occur within a portion of the base that has already been disturbed by construction activity. These activities would include minor digging, grading, stockpiling soil, and compaction from construction equipment. Construction activities would minimally affect, and not significantly impact, both vegetation and wildlife on Malmstrom AFB. No critical habitat or threatened or endangered species would be affected by the Proposed Action; no significant impacts are projected to occur. No wetlands would be filled as a result of the construction activities; no Section 404 permit would be required. Silt barriers would be placed to protect wetlands from adverse environmental impacts from water runoff and erosion during construction activities. Minimal indirect disturbance of wetlands caused by runoff would occur. Impacts to biological resources would not be significant.

Under the Implementation Alternative, impacts to biological resources would be similar to those under the Proposed Action. Activities under the Implementation Alternative (such as additional construction) would have a short-term, but not significant, impact resulting from the displacement of wildlife and replacement of vegetation (although there would be slightly more disturbance than under the Proposed Action). No critical habitat or threatened or endangered species would be affected by the Implementation Alternative, and no wetlands would be filled. Under the No Action Alternative, there would be no change to the biological environment on Malmstrom AFB; minor disturbances to vegetation and wildlife would occur if excavation was required for ongoing facility maintenance.

4.4.1. Analysis Methods

The assessment of potential impacts to biological resources focused on the proposed location on Malmstrom AFB for upgrade and construction of the WMMSC. The existing habitat was evaluated in areas with planned project activities. The *Malmstrom AFB General Plan* (USAF, 2000f) and the *Malmstrom AFB Fish and Wildlife Plan* (USAF, 1996c) were reviewed along with other environmental documents to provide data on existing biological resources on the base. The predicted impacts were then reviewed for significance.

4.4.2. Potential Impacts of the Proposed Action

The loss of vegetation and temporary displacement of wildlife during construction activities would be an unavoidable impact, but would not be significant.

4.4.2.1. Vegetation

Excavation of soils and vegetative cover in order to upgrade and construct the WMMSC would not require the disruption of important habitat or previously undisturbed land. The ecological management strategy for the Proposed Action should aim to keep native vegetation intact. Once the WMMSC has been upgraded and constructed, open areas should be restored with native vegetation to their original condition. Other maintained grasses disturbed during digging and grading of the sites would be replaced after construction activities are completed. The project area is located on semi-improved and improved grounds that are not considered critical habitat. Impacts to vegetative resources on Malmstrom AFB would not be significant because the existing vegetation would be restored.

Exposed bare soil leads to invasion by different plant communities, such as non-native plants, grasses, and noxious weeds. As a best management practice, the Air Force would require the contractor to revegetate the area when construction is complete. The Air Force would continue to spray for noxious weeds as needed.

Best management practices and control measures would be implemented to ensure that impacts to biological resources are avoided to the extent possible. The amount of vegetation disturbed during construction activities would be kept to the minimum amount required. Additional practices proposed to minimize adverse effects could include using straw bales, silt fences, silt traps, or diversion structures and covering stockpiles during grading activities to contain waterborne erosion and reduce or prevent sediment from reaching storm sewers and ditches.

4.4.2.2. Wildlife

Wildlife such as the white-tailed jackrabbit, badger, skunk, deer mice, ground squirrels, birds, and coyotes would be displaced as part of the action. Impacts to these species are not considered significant due to their abundance and their ability to seek similar habitat in the surrounding area. Once the WMMSC is constructed, the contractor would be required to revegetate the open areas. The wildlife species previously displaced would most likely return to the area and establish population levels similar to pre-construction levels. Long-term impacts to wildlife would not be significant.

4.4.2.3. Threatened and Endangered Species

Construction activities associated with the Proposed Action would occur on previously disturbed land within the base. As noted in Section 3.4.3, no federal- or state-listed species are known to occur on Malmstrom AFB. An Endangered Species Biological Survey of Malmstrom AFB conducted in 1994 (USAF, 1996c) and An Evaluation of the Vegetation, Wildlife, and Aquatic Resources of Malmstrom AFB conducted in the summer of 1999 (USAF, 2000) concluded that this area does not include optimal habitat for any transient threatened or endangered species. Protected birds that may migrate through the area, such as the bald eagle, may be temporarily startled by demolition noise, but no significant impacts are expected as a result of the noise. Species migrating through the area are not known to nest in the area. The project area does not contain any known habitat for any of Montana's species of special concern (USAF, 2000e). The Air

Force will informally consult with USFWS to reconfirm the information presented in the previously referenced documents.

4.4.2.4. Wetlands

No wetlands would be filled as a result of the Proposed Action; no Section 404 permit would be required. Ground disturbance during construction activities in the project area could increase soil erosion from water runoff and wind, having a short-term adverse impact on aquatic resources at sites where open waters are nearby. Increased erosion would increase siltation, which could damage wetland plants and alter water quality. However, the wetlands are separated from the project area by Perimeter Road, an unnamed road south of the WMMSC, and heavily vegetated drainage ditches, so the potential for siltation is slight and would be reduced by using standard construction practices such as silt barriers. Silt barriers would be placed to protect wetlands from adverse environmental impacts from water runoff and erosion during construction activities. Drainage in the project area would not change substantially as a result of the Proposed Action. Construction within the WMMSC would not result in runoff or drainage to the Palustrine wetland south of the complex. Drainage into the Palustrine wetland east of the project area and the Riverine wetland north of Perimeter Road would remain essentially the same. Restrictions would be placed in the technical specifications for the design of the new mounds (one each north and south of the WMMSC) to ensure that the wetlands in the project area would be avoided.

Taking into account the normal application of best management practices during upgrade, construction, and demolition activities (e.g., replacement of vegetation as soon as possible, and the use of silt barriers), the impacts to wetlands would not be significant. The hydrologic flow would not be altered during or subsequent to construction.

4.4.3. Potential Impacts of the Implementation Alternative

For the Implementation Alternative, impacts would be similar to those described under the Proposed Action. While additional facilities would be constructed under this alternative, the action would occur in the same area as the Proposed Action. No critical habitat or threatened or endangered species would be affected by the Implementation Alternative, and no wetlands would be filled. There would be no significant impact to biological resources.

4.4.4. Potential Impacts of the No Action Alternative

For the No Action Alternative, current conditions at Malmstrom AFB would continue and no significant impacts would occur. Minor disturbances to vegetation and wildlife would occur if excavation was required for ongoing facility maintenance.

4.4.5. Mitigation Measures

No significant impacts have been identified, and no mitigation measures are required or recommended.

4.5. CULTURAL RESOURCES

Cultural resources are limited, nonrenewable resources whose values may easily be diminished by physical disturbances. There are no known cultural resources within the area proposed for demolition, upgrade, or construction of the WMMSC under the Proposed Action or Implementation Alternative. Construction activities would occur at previously disturbed areas; therefore, impacts on archaeological resources are unlikely. No buildings demolished as part of this action are listed or eligible for listing on the National Register of Historic Places (NRHP). No significant impacts to cultural resources are projected under the Proposed Action or Implementation Alternative. There would be no impacts to cultural resources from the No Action Alternative.

4.5.1. Analysis Methods

To determine potential impacts, the analysis focused on the types of activities that would occur and their location, and the significance of the resources in that location. The Malmstrom AFB General Plan, the Cultural Resource Management Plan, the Prehistoric and Historic Resources Field Survey Report, and previous National Environmental Policy Act (NEPA) documents were reviewed to provide data on existing cultural resources on the base.

4.5.2. Potential Impacts of the Proposed Action

No known cultural resources have been identified in the area proposed for demolition, upgrade of facilities, or construction of new facilities for the WMMSC. Cold War resources and the railroad line that are potentially eligible for listing on the NRHP are not located in the project area. This area has been previously disturbed due to past base operations; therefore, digging in these locations is not anticipated to unearth resources of any importance. No buildings scheduled for demolition as part of this action are listed or eligible for listing on the NRHP. No significant impacts to cultural resources from activities associated with the Proposed Action are projected to occur.

Should unknown archaeological resources be uncovered during construction activities, the Air Force would follow procedures described in AFI 32-7065, *Cultural Resource Management*, for coordination with the Montana State Historic Preservation Officer and Advisory Council on Historic Preservation.

4.5.3. Potential Impacts of the Implementation Alternative

Impacts under the Implementation Alternative would be similar to those under the Proposed Action, since the demolition, upgrade of facilities, and construction would take place in the same project area. There are no known cultural resources in the project area, and no buildings scheduled for demolition as part of this action are listed or eligible for listing on the NRHP; therefore, no significant impacts would occur. In the event of an unexpected discovery during construction, the Air Force would follow procedures described in AFI 32-7065.

4.5.4. Potential Impacts of the No Action Alternative

For the No Action Alternative, current conditions would not change and no impacts to cultural resources would occur.

4.5.5. Mitigation Measures

No impacts to cultural resources have been identified, and no mitigation measures are necessary or suggested.

4.6. NOISE

Certain activities associated with the Proposed Action or Implementation Alternative could have short-term impacts on the noise environment, but would not be significant. Construction and traffic associated with the Proposed Action would not significantly influence the noise environment, because the noise generated would be intermittent and occur during daytime hours. Following construction, the noise environment in the area of the WMMSC would return to pre-construction levels; no long-term changes to the noise environment would occur. Due to additional construction, impacts under the Implementation Alternative would be slightly greater than the Proposed Action, but still not significant. There would be no significant impacts under the No Action Alternative; noise levels would remain the same.

4.6.1. Analysis Methods

The analysis of noise impacts was based on the assessment of the estimated noise levels generated from the Proposed Action and a comparison with ambient noise levels. The analysis was also based on identifying any sensitive receptors within a 1,000-foot radius of the proposed project area. Maps of Malmstrom AFB were used to determine the locations of sensitive receptors. A perimeter distance of 1,000 feet has been established for potential construction noise impacts. Noise levels outside this perimeter would likely attenuate below 65 dBA, which is the level of potential noise concern. The 65 dBA noise level was chosen because it approximates the division between a quiet and moderate sound level.

4.6.2. Potential Impacts of the Proposed Action

Normal background noise levels average around 65 dBA on Malmstrom AFB. Construction activity would occur over a two-year period; the noise generated would be a short-term and intermittent impact. In general, construction activity would be limited to daytime weekday hours. During construction, additional vehicle trips would be generated in and around the east side of Malmstrom AFB by vehicles transporting workers, material, and equipment to the project area. This traffic would most likely enter via the Commercial Gate and continue east on Perimeter Road to the project site. The effects of additional construction-related traffic on Perimeter Road and in the project area would not create any significant noise impacts. Given the types of equipment likely to be used in constructing the WMMSC (e.g., bulldozers, dump trucks, etc.), and the noise levels of the equipment (see Table 3.6-2), typical noise emissions at 50 feet from multiple pieces of construction equipment would be approximately 90 dBA (U.S. Army, 1978).

Without considering additional attenuation from trees, this level would reduce to about 84 dBA at 100 feet, 78 dBA at 200 feet, and 66 dBA at 800 feet (see Figure 4.6-1). These are the out-of-doors noise levels; within a building the noise levels would be attenuated by 20 to 25 dBA, and would not result in significant short-term construction noise impacts.

There are no sensitive receptors within 1,000 feet of the project area; at this distance sound levels would be in the 50 dBA range, an acceptable limit for an industrial area. Construction or traffic noise increasing ambient levels above 65 dBA (A-weighted decibel) would be considered a significant impact. Therefore, there would be no noise impacts to sensitive receptors. Long-term noise levels (after construction is completed) would not increase above current levels. After construction is complete, the number of vehicles entering the project area (and consequent traffic noise) would be comparable to pre-construction levels.

4.6.3. Potential Impacts of the Implementation Alternative

Under the Implementation Alternative, impacts from noise generated would be essentially the same as under the Proposed Action, but slightly greater due to the increased amount of construction, with no significant short-term noise impacts anticipated. There would be no impact to sensitive receptors. No significant long-term impacts would occur. After construction is complete, the number of vehicles entering the project area (and consequent traffic noise) would be comparable to pre-construction levels.

4.6.4. Potential Impacts of the No Action Alternative

No impacts would occur from the No Action Alternative; noise levels would remain at current levels.

4.6.5. Mitigation Measures

No significant impacts to noise levels have been identified, therefore, no mitigation measures are necessary or recommended.

4.7. SOCIOECONOMICS

Under the Proposed Action or the Implementation Alternative, construction expenditures for labor and materials would provide short-term beneficial impacts to employment and income in the region of influence (ROI), Cascade County. Impacts to population, if any, would not be significant and would likely be short-term. No significant long-term impacts would occur to the local economy. There would be no impacts to socioeconomic resources under the No Action Alternative.

4.7.1. Analysis Methods

Measures used for impact analysis include employment, income, building permit values, and population. Cascade County, Montana, and United States employment and income data were obtained from the U.S. Bureau of Economic Analysis (2000).

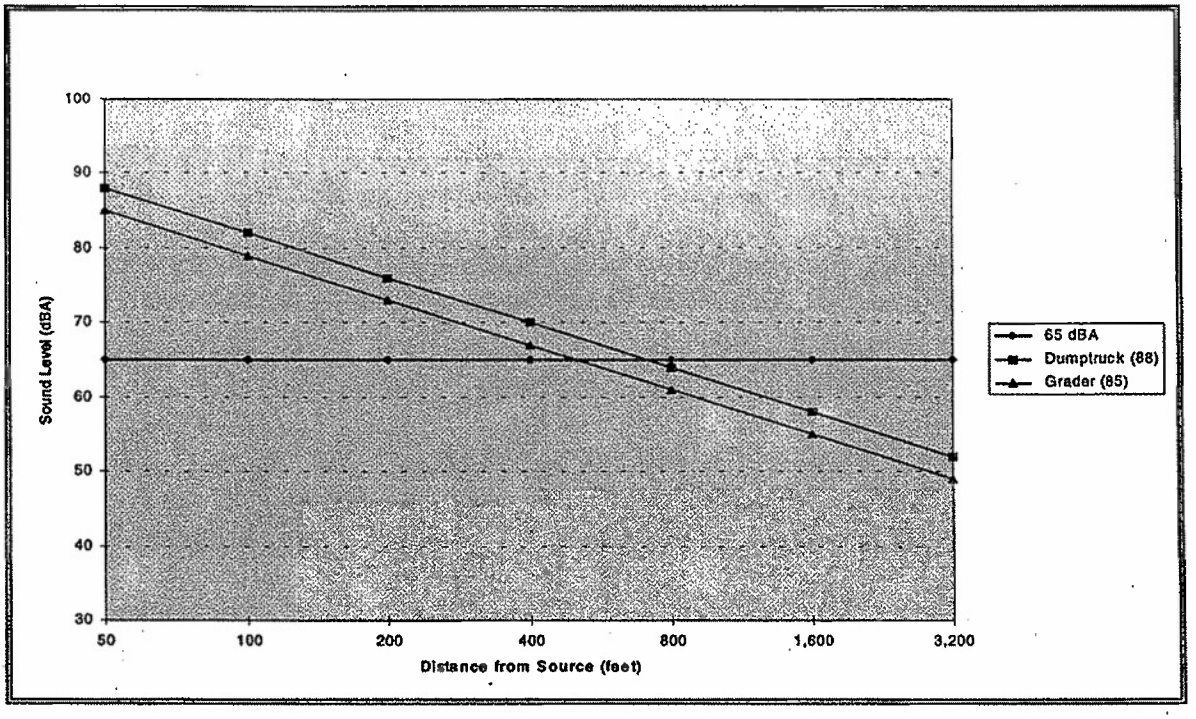


Figure 4.6-1. Noise Emissions from Equipment at 85 and 88 dBA

Population data were obtained from the 1990 Census of Population and Housing, and USA Counties 1998. Building permit data were obtained from the City of Great Falls Community Development Department and the Montana Department of Commerce Building Codes Division.

Fluctuation in employment and population within the ROI was analyzed to determine the potential significance of impacts to socioeconomic resources. This analysis allowed a determination of the appropriate levels, or thresholds, beyond which changes in population or employment would noticeably affect individuals and communities within the ROI.

4.7.2. Potential Impacts of the Proposed Action

Beneficial impacts to local employment and income are expected to occur as a result of the construction activities; no long-term significant change would occur from previous levels. No long-term impacts to population are projected, and short-term impacts, if any, would not be significant.

4.7.2.1. Employment and Income

The Proposed Action involves no changes in personnel at Malmstrom AFB. Therefore, there would be no impacts to permanent employment in the area.

For January through August, 2000, construction permits issued by the City of Great Falls on all construction within the city totaled $42.8 million. This amount is 7.9 percent higher than the comparable time period in 1999, so it is estimated that 2000 permit valuations will total $55.4 million, which represents an increase of 7.9 percent over the

1999 total of $51.3 million. Approximately 75 percent of the 2000 construction in Great Falls was non-residential (commercial, hospitals, schools, etc.). Outside the city limits, the State of Montana issues permits only on non-residential construction; this amount totaled $1.9 million in 1999. Assuming that non-residential construction outside the city also comprises approximately 75 percent of total construction, it is estimated that all construction outside the city in 1999 totaled approximately $2.5 million. Further assuming a 7.9 percent increase in 2000 in construction outside the city as well as in Great Falls, this would yield an estimated total value of $2.7 million for construction outside the city, and a total value for the county of approximately $58.1 million.

The Proposed Action includes construction and demolition over approximately two years. Assuming that the project expenditures of $30.7 million would occur evenly over the two years ($15.35 million per year), this would constitute an increase of approximately 26 percent over the estimated construction in Cascade County for the year 2000. Even though it is unlikely that all of the construction expenditures and impacts would occur within Cascade County, the project would still provide a substantial beneficial impact to local income.

Most construction workers would likely be hired from the area's labor force, providing a short-term beneficial impact to the local economy. The average 1999 unemployment rate of 5.3 percent for Cascade County suggests that workers would be available locally. Long-term impacts on employment (following construction) would not be significant.

4.7.2.2. Population

No personnel would relocate to Malmstrom AFB as a result of the Proposed Action, and it is unlikely that many construction workers would relocate to Cascade County for this project. After the construction was completed, the local population would essentially be unchanged from previous levels. There would be no long-term impacts to population, and short-term impacts, if any, would not be significant.

4.7.3. Potential Impacts of the Implementation Alternative

Under this alternative, impacts to socioeconomic resources would be similar to those described under the Proposed Action. However, the project dollars would be approximately $3.2 million higher for this alternative than under the Proposed Action, and the construction expenditures would constitute an increase of nearly 27 percent over the estimated construction in Cascade County for the year 2000. Even though it is unlikely that all of the construction expenditures would occur within Cascade County, the project would still provide a substantial beneficial impact to local income. Long-term impacts on employment (following construction) would not be significant. Population impacts would be the same as under the Proposed Action.

4.7.4. Potential Impacts of the No Action Alternative

Under the No Action Alternative, impacts to socioeconomic resources would be unchanged from the present. Necessary maintenance (costing approximately $1.3 million per year) would continue to be performed to keep the facilities operating, and the impacts to the local area from those expenditures would continue. The beneficial impacts described above for the Proposed Action or Implementation Alternative would not occur.

4.7.5. Mitigation Measures

No significant adverse impacts to socioeconomic resources are expected, and no mitigations are suggested.

4.8. ENVIRONMENTAL JUSTICE

There would be no environmental justice impacts as a result of the Proposed Action, the Implementation Alternative, or the No Action Alternative.

4.8.1. Analysis Methods

Measures used for impact analysis include demographic and income data obtained from the U.S. Bureau of Census (1990); these data were used to locate minority populations and low-income populations within the deployment area. The 1990 Census provides the latest reliable data on the proportion of minority and low-income populations, as the 2000 Census data are not yet available.

To understand whether or not environmental impacts would disproportionately affect minority or low-income populations, an appropriate basis for comparison must be established, and the presence and location of low-income or minority populations must be determined. The ROI, as defined in Section 3.7.1, was determined to be the community of comparison for the determination of potential impacts.

4.8.2. Potential Impacts of the Proposed Action

There are no low-income or minority populations living near the area of the WMMSC. Therefore, no environmental justice impacts could occur.

4.8.3. Potential Impacts of the Implementation Alternative

The Implementation Alternative would occur in the same location as the Proposed Action. Therefore, no environmental justice impacts could occur.

4.8.4. Potential Impacts of the No Action Alternative

Under the No Action Alternative, there would be no impacts to environmental justice.

4.8.5. Mitigation Measures

No significant adverse impacts to environmental justice are expected, and no mitigations are required.

4.9. TRANSPORTATION

Parts of the road network at Malmstrom AFB would be temporarily affected by the Proposed Action during construction activities. Short-term, but not significant, impacts would result primarily from temporary disturbances from construction equipment and increased traffic from construction worker vehicles and dump trucks. Subsequent to the completion of construction, the traffic levels in the area of the WMMSC would return to pre-construction levels; there would be no long-term impacts. Impacts from the Implementation Alternative would be similar to those under the Proposed Action

although slightly greater, but would also not be significant. Helicopter flights at Malmstrom AFB would not be affected under either the Proposed Action or the Implementation Alternative. The No Action Alternative would have no impact on the transportation infrastructure.

4.9.1. Analysis Methods

The analysis is primarily concerned with assessing changes from existing road conditions and traffic flow as a result of implementing the Proposed Action or Implementation Alternative. Information on the traffic routes and existing traffic volumes and flow was examined to predict the types and extent of impacts that would likely occur. Sources of information used in the analysis include a Gate Evaluation/Traffic Analysis, the Malmstrom AFB General Plan, and a Traffic Signal Warrant Report prepared for the Montana Department of Transportation.

4.9.2. Potential Impacts of the Proposed Action

The proposed WMMSC construction would occur over a two-year period, beginning in FY 05. An estimated 30 contractor vehicles would enter and exit the base on a daily basis Monday through Friday during the construction period. The additional vehicles would enter through the Commercial Gate, which receives less traffic than the Main Gate, and follow Perimeter Road to the project area. Compared to the 9,800 vehicles that currently enter the base on a daily basis, an additional 30 contractor vehicles would be less than a one-percent increase in the total traffic. Impacts from additional contractor vehicle traffic would not be considered significant.

Current soils in the project area are not adequate for construction. An estimated five to ten dump trucks per hour, eight hours per day, for three to four weeks, would enter and exit the base to deliver fill material. The dump trucks would travel along Perimeter Road and use the Commercial Gate. The trucks would most likely not be entering and exiting the base during peak rush hours; therefore, impacts to traffic congestion at the Commercial Gate would not be significant.

Construction would impact traffic within the project area on North Storage Road, Middle Storage Road, East Storage Road, West Storage Road, and South Storage Road. Portions or all of these roads may need to be partially or totally closed during construction. Temporary roads may need to be constructed to maintain traffic flow and munitions movement within the project area during the construction timeframe. Closures would be temporary and traffic would be detoured to alternate roads. A portion of Middle Storage Road would be permanently closed. New roads would be constructed as shown in Figures 2.1.2 and 2.2.1. Impacts from temporary road closures would cause a temporary inconvenience, but would not significantly impact traffic flow.

After the completion of construction, the traffic levels in the area of the WMMSC would return to pre-construction levels; there would be no long-term impacts. Helicopter flights at Malmstrom AFB would not be impacted by the Proposed Action.

As a best management practice, the construction contractor could schedule dump trucks to enter and exit the base before or after peak morning and evening rush hours.

4.9.3. Potential Impacts of the Implementation Alternative

Impacts under the Implementation Alternative would be similar to those under the Proposed Action. The same roads would be affected in the project area. Short-term impacts would be not considered significant and long-term traffic patterns and levels would be the same as before the construction started.

4.9.4. Potential Impacts of the No Action Alternative

Under this alternative, the WMMSC would not be constructed. There would be no changes to existing traffic flow or road conditions.

4.9.5. Mitigation Measures

No significant impacts from implementing the Proposed Action were identified. No mitigation measures are required or recommended. .

4.10. ENVIRONMENTAL PROGRAMS

The Proposed Action would not have significant adverse impacts to human health or safety, asbestos, lead-based paint (LBP), polychlorinated biphenyls (PCB), hazardous materials and waste, Installation Restoration Program (IRP), solid waste, wastewater, and storm water. There would be beneficial impacts from the removal of asbestos, LBP, and PCBs from facilities and from the upgrade of wastewater and storm water management systems. The Implementation Alternative would result in short-term and long-term impacts similar to those under the Proposed Action, with no significant impacts. The No Action Alternative would pose adverse impacts to human health and the environment, as some facilities would deteriorate and potentially allow for releases of hazardous substances. For example, wastewater system backup and storm water flooding problems would continue.

4.10.1. Analysis Methods

To assess potential impacts, the analysis focused on issues relating to health and safety, hazardous materials use, asbestos LBP, and PCBs, hazardous and solid waste generation, the IRP, storm water, and wastewater. The analysis identified the existing environmental programs and the extent to which the upgrade and renovation to the WMMSC could affect a given program. Key elements included the extent of the proposed construction and demolition, the potential for generating additional wastes, and the potential for disturbing IRP sites. Sources of information included site inspections and interviews of base personnel, the Malmstrom AFB General Plan, the Pollution Prevention Management Plan, spill plans, IRP documents, state and federal laws and regulations, and similar materials.

4.10.2. Potential Impacts of the Proposed Action

4.10.2.1. Health and Safety

Health and safety issues addressed in this document primarily apply to construction and demolition activities. Radiation health and safety is also an important issue that was evaluated. The Air Force has formal safety programs addressing construction and

demolition activities, which provide detailed safety requirements. Contractors must comply with all Air Force Occupational Safety and Health (AFOSH) Standards and Occupational Safety and Health Administration (OSHA) regulations, and would be required to submit a safety plan. Safety plans may be written to address specific tasks for particular types of activities (such as confined space work within a lift station). The health or safety risk would be a function of the type of work. Health and safety are also specifically safeguarded for special activities, including asbestos and LBP removal. Working with asbestos and LBP requires special training. The construction and demolition activities of the Proposed Action and Implementation Alternative would not include unusual or unique hazards, and the risks would not be significant.

The WSA operates under strict standards governing the number of various types of explosives that can be stored (see Section 3.10.1). All explosives and nuclear weapon components would remain in secure storage during the proposed upgrade of the WMMSC according to applicable regulations. There would be no changes in the methods that personnel handle weapon components and munitions. When munitions would be moved from existing facilities to new facilities, all procedures and applicable regulations for transporting them would be followed. The potential impacts would not differ substantially from those which occur from transporting weapons on and off base, except that the area of potential impact is limited to the WMMSC. Impacts to the health and safety of Air Force personnel and the public would not be significant. The amount of radiation received by personnel handling the reentry systems would be well below the allowable occupational dose of five rems per year specified in 10 CFR 20.1201. Thus, worker exposure to ionizing radiation from handling the reentry system would continue to be minimal and not significant.

The reentry system handling procedures are designed to prevent a mishap with the nuclear device, and no incidents of detonation have occurred at any intercontinental ballistic missile site. Because of the extremely improbable nature of a detonation during handling, this scenario is eliminated from further evaluation.

When the upgrade would be completed, the WMMSC would fully meet all design requirements for WMMSCs and would be able to operate at full capacity. This would have a beneficial impact on worker safety and the ability to meet mission requirements. Weapons maintenance personnel would be able to return to single-shift work because of increased workplace throughput.

The quantity-distance zones would expand to the east by about 2,000 feet and to the north by about 900 feet. These zones would remain within base boundaries and there would be no impact to the surrounding off-base population or land use. The zones would not reach the airfield, nor affect the potential future use of the flightline for commercial aircraft.

4.10.2.2. Asbestos

The demolition of facilities could temporarily increase the amount of asbestos waste generated by the base. Although the waste would be a hazardous air pollutant, the small quantity of the hazardous air pollutant and the duration of the removal process would not produce a significant impact. Bldgs 1840 and 1867 were found to contain asbestos; other buildings would be surveyed for asbestos prior to demolition. Most of the asbestos-

containing material (ACM) to be removed is found in wall panels, floor and ceiling tiles, as well as electrical and pipe insulation (see Section 3.10.2 for locations known to contain asbestos). Materials removed from the facilities that contain asbestos would be disposed of in a permitted landfill (a landfill that contains asbestos "cells") licensed to handle the ACM. Workers handling the ACM would have the appropriate level of training and take the required precautions to prevent exposure to asbestos fibers. Consequently, no short-term significant adverse impacts would occur from the handling and disposal of asbestos. There would be long-term benefits from removing ACM from updated or demolished facilities.

4.10.2.3. Lead-Based Paint

A limited survey for LBP has been conducted at the WMMSC (see Section 3.10.3). Prior to any proposed activities affecting painted surfaces, those areas which have not been surveyed would be tested for LBP. Depending on the condition and concentration of LBP, the Air Force or a contractor could remove the LBP prior to renovation or upgrade activities. The quantities of wastes generated would be determined prior to demolition of the facilities. Any LBP removed would be properly contained and disposed of as a hazardous waste. Contractors who remove LBP are also responsible for proper disposal of the waste. The demolition of facilities could temporarily increase the amount of LBP waste generated by the base. Although this waste could be hazardous if removed, the quantities of waste and the duration of the LBP removal (more than one year) would not produce a significant impact. Demolition wastes would be taken off-site for disposal at appropriate state-permitted landfills after evaluation of the lead (and other heavy metal) content. If it qualifies for disposal in a landfill as construction debris, the waste would be buried and not be an inhalation or dermal absorption hazard.

The use of personal protective equipment during the demolition and removal of materials that are coated with LBP are generally used to meet OSHA requirements under 29 CFR 1926.26. Malmstrom AFB requires personal protective equipment for construction and demolition activities in accordance with LBP test results. Removing LBP from Malmstrom AFB would be a long-term beneficial impact to on-base personnel.

4.10.2.4. Polychlorinated Biphenyls

PCB-containing ballasts and capacitors would probably be encountered during demolition or upgrade activities (Verzuh, 2000). As a best management practice, the contractor would be informed of the potential for PCBs in various materials, and provided available sampling information. Safe handling of these materials would be practiced to prevent exposure to workers or the public, and prevent the airborne release of PCBs. During the environmental safing process, all items suspected or known to contain PCBs would be extracted, packaged, and transported to a storage site at the installation that meets the criteria specified in 40 CFR 761, and turned in to the DRMO for ultimate disposal at an approved facility or landfill. Manifests would be maintained by the base for the disposal of any PCB-containing wastes. There would be a long-term beneficial impact from the removal of items containing PCBs.

4.10.2.5. Hazardous Materials and Waste Management

Hazardous materials such as paints, thinners, and sealants may be used by the construction contractor during the upgrade and construction activities, but would be controlled under standard safety and handling procedures. Site safety and health plans would address potential spills and exposure to hazardous materials, and are designed to protect worker and public health and prevent environmental damage.

Although the demolition and construction of facilities could temporarily increase the use of hazardous materials and the amount of hazardous waste generated by the base, no new types of hazardous materials or wastes would be used or generated. Typical construction contracts require the contractor to store and transport the hazardous materials, and arrange for the proper disposal of any excess materials or waste; disposal of contractor-derived waste is not included in base reporting to regulatory agencies. Standard safety procedures would be required (e.g., no smoking while handling flammable materials). These wastes would be similar to wastes generated by previous projects, and could be safely managed through the construction contract. Overall, construction and demolition activities would minimally change the short-term generation of wastes and any impacts would not be significant.

4.10.2.6. Installation Restoration Program

Three former IRP sites (OT-16, SS-17, and LF-19) are in the project area vicinity, but are not within the areas proposed for excavation and construction.

No further IRP action is warranted to sites SS-17 and OT-16 (USAF, 1996a). As discussed in Section 3.10.5, these sites do not pose unacceptable long-term risks to human health or the environment. Although sites SS-17 and OT-16 are upgradient from the WMMSC, surface water flow from these areas is diverted through a drainage ditch around the WMMSC. There is no shallow groundwater at these IRP sites. Therefore, groundwater migration and surface water runoff from SS-17 and OT-16 would not significantly affect construction activities at the WMMSC. Due to being downgradient, groundwater and surface water runoff from the WMMSC would not adversely affect these two IRP sites.

Site LF-19 lies to the northeast of the project area and is upgradient of the WMMSC. Surface water and shallow groundwater flow from LF-19 is primarily northwest and away from the WMMSC. A drainage ditch separates the areas and serves as a surface water divide preventing flows from each area of reaching the other area. A large thickness of impermeable clay materials between the base of the landfill and the top of the regional aquifer protects the aquifer from any contamination originating from the landfill site; investigation results from a monitoring well placed into the regional aquifer show no contamination from LF-19 (USAF, 2000f). The IRP activities for LF-19 would not adversely affect the Proposed Action activities and vice versa. Impacts to the IRP would not be significant.

4.10.2.7. Solid Waste

The Proposed Action would generate a temporary increase in construction and demolition debris. Solid wastes generated at the WMMSC include garbage, recyclable materials,

construction, and demolition debris. Garbage could be generated during construction and demolition; all garbage would be removed from the site and disposed of by the contractor. These quantities would not have a substantial effect on landfill capacities. The commercial landfill (High Plains Sanitary Landfill), typically used by base contractors for solid waste disposal, is projected to last another 36 years. The base is also actively seeking to reduce additional solid waste through reduction and recycling efforts. The removal and reuse of recyclable materials would have a beneficial impact on the environment. Solid waste amounts generated from operational activities after completion of construction would be similar to pre-construction amounts, and would not significantly impact waste management.

4.10.2.8. Wastewater

The Proposed Action activities would utilize the base's existing sanitary sewer piping. The existing sanitary sewer systems north and south of the WMMSC would be replaced with a standard septic system meeting both Air Force and State requirements (USAF, 2000d). The two existing sanitary sewer lift stations would be replaced with underground lift stations. The existing sanitary sewer systems would also be cleaned and renovated to include new septic tanks and drain fields. Any necessary permits for new drain fields would be obtained by the construction contractor as part of the construction process.

Another possibility, depending on its feasibility, would be to replace the septic tank drainfield systems by installing a force main from the WMMSC beneath the runway to tie into the existing base sanitary system (Heckler, 2001).

The replacement of the existing sanitary sewer system at the WMMSC with a standard system, which meets Air Force and State of Montana requirements, would have a beneficial impact on wastewater management. Currently, the lift stations north and south of the WMMSC complex are not operating efficiently and would be replaced with underground lift stations to meet efficiency standards. Renovation of the sewer system with new, standardized septic tanks or attaching the WMMSC to the base sanitary sewer system would also be beneficial to wastewater management. No change in amounts of wastewater is expected to occur; therefore, renovation and upgrade activities will have a long-term beneficial impact on wastewater management.

4.10.2.9. Storm Water

Malmstrom AFB currently holds a Montana "General Discharge Permit for Storm Water Associated with Industrial Activity," which excludes any discharge of storm water associated with construction activity. Upgrade and construction activities at the WMMSC would affect greater than five acres of land; therefore, the construction contractor would obtain a Montana Pollution Discharge Eliminator System (MPDES) permit for construction activity.

Under the proposed WMMSC renovation and upgrade project, existing drainage swales and catch basins would be cleaned and utilized for storm water runoff. Additional swales and catch basins may be necessary due to the removal of berms and construction of facilities (USAF, 2000d). The installation of drainage trenches and concrete topping slabs to improve storm water drainage may also be necessary.

Upgrading the drainage system would improve the flow of storm water during heavy rain events, thus reducing the amount of standing water and the hazard of flooding in flood-prone areas. The installation of drainage trenches and concrete topping slabs would minimize the amount of storm water infiltrating into the ground in the event a spill would occur. This would result in a long-term beneficial impact to affected areas. The installation of drainage trenches would involve temporarily removing vegetation during construction. Native vegetation would be replanted in the disturbed areas following construction activities. It is recommended that silt traps be temporarily installed in the drainage systems to collect any increased sedimentation that would occur from construction activity. The construction of new facilities and modification of existing facilities would not cause a significant short-term impact on storm water management.

4.10.3. Potential Impacts of the Implementation Alternative

Under the Implementation Alternative, the short-term and long-term impacts would be similar to those under the Proposed Action. Solid waste amounts may be slightly higher due to additional construction alternatives. Minor design differences under this Alternative would not impact weapon safety. There would be beneficial impacts from the removal of asbestos and LBP from facilities and the upgrade of wastewater and storm water management systems. No projected impacts would be significant.

4.10.4. Potential Impacts of the No Action Alternative

Under the No Action Alternative, there would continue to be adverse impacts to environmental programs related to the maintenance of aging and deteriorating facilities. Existing restrictions on weapons storage would continue if the upgrade is not completed. Renovation and upgrade of the WMMSC facilities would not occur, and any asbestos and LBP present in the facilities would not be removed. Adverse impacts would occur if wastewater system backup and storm water flooding problems continued, and some concrete structures would sustain further damage due to water seepage.

4.10.5. Mitigation Measures

There would be no significant adverse impacts to Environmental Programs. No mitigations are suggested.

4.11. COMPATIBILITY OF THE PROPOSED ACTION OR IMPLEMENTATION ALTERNATIVE WITH OBJECTIVES OF FEDERAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS

The Proposed Action or Implementation Alternative do not conflict with existing Federal, state, and local land use plans, policies, and controls. The Proposed Action or Implementation Alternative would occur on base and in an area of similar land use. The relocation of munitions within the MSA would help facilitate potential future use of the installation runway for commercial purposes.

4.12. RELATIONSHIPS BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

The Proposed Action and Implementation Alternative would involve the use of previously developed areas. No croplands, pastureland, wooded areas, or wetlands would be modified or affected as a result of implementing the Proposed Action or Implementation Alternative and, consequently, productivity of the area would not be degraded.

4.13. CUMULATIVE IMPACTS

Cumulative impacts are those changes to the physical, biological, and socioeconomic environments that would result from the Proposed Action or Implementation Alternative in combination with reasonably foreseeable actions. Significant cumulative impacts could result from impacts that are not significant individually, but when considered together, are collectively significant.

The use of construction-related vehicles–and their short-term impacts on noise, air quality, and traffic–is unavoidable. The short-term increases in air emissions and noise during construction and the impacts predicted for other resource areas would not be significant when considered cumulatively with other ongoing and planned activities at Malmstrom AFB and nearby off-base areas. The construction and operation activities would affect dispersed locations, not necessarily concurrently, and would not cause significant cumulative impacts. Construction of the Montana Army National Guard armory on the west side of the runway would likely be complete before construction would begin on the WMMSC, so no cumulative impacts would occur.

The Great Falls City-County Planning Board has concerns that surface water runoff through the Whitmore Ravine north of Malmstrom AFB has formed a delta of silt in the Missouri River. North of the base, two coulees converge into the Whitmore Ravine. Near the WMMSC, there are three small coulees that join just north of the WMMSC and continue to the north, eventually converging north of Malmstrom AFB into the Whitmore ravine. Runoff from the WMMSC (Drainage Basins 5 and 6) is slight except during intense storm events. Basins 5 and 6 have very little runoff due to heavily vegetated coulees. Runoff and potential siltation would not be significant with best management practices during construction. The Proposed Action would not cause a significant amount of total suspended solids to discharge into the Missouri River. Because Basins 5 and 6 make up a small proportion of overall drainage from Malmstrom AFB, and are vegetated and help trap runoff sedimentation, the runoff plays a negligible role on sedimentation within the Missouri River compared to other drainage basins. Development and projects constructed in the area north of the base could cause sedimentation impacts and affect erosion, but the WMMSC project would not cause a cumulatively significant impact to water resources.

The Proposed Action or Implementation Alternative would result in short-term traffic impacts in the vicinity of Malmstrom AFB. Although construction of the WMMSC would temporarily (and adversely) affect traffic flow, there would be no long-term

adverse impacts. Consequently, there would be no significant cumulative traffic impacts from the Proposed Action or Alternative Actions.

The cumulative impact of the Proposed Action or Implementation Alternative with other ongoing construction in the area would produce an increase in solid waste generation; however, the increase would be small and limited to the timeframe of each construction project. The area landfills used for construction and demolition debris do not have capacity concerns and could readily handle the solid waste generated by the various projects.

The cumulative impact of the WMMSC project and several other projects on base (such as the relocation of certain facilities and the handling of explosives or hazardous materials) may make it possible for the Malmstrom AFB runway to be used commercially at some time in the future. This expanded airport function would provide a beneficial long-term economic impact to the City of Great Falls, Cascade County, and the surrounding area by enhancing economic development possibilities.

The Proposed Action or Implementation Alternative would be concurrent with other actions (e.g., construction projects and additions and alterations to facilities) that are planned or ongoing at Malmstrom AFB. Any such future federal actions that may have potentially significant cumulative impacts to the environment would be assessed in separate NEPA documents upon their proposal.

4.14. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The Proposed Action or Implementation Alternative would require the use of fill and other construction materials (such as concrete and rebar) at the WMMSC. These materials would be irretrievably committed. The loss of vegetation from clearing land for the WMMSC additions would be an irretrievable commitment of resources. However, the land that would be occupied by the WMMSC ultimately could be restored as vegetation if the WMMSC were removed in the future. Therefore, the commitment of land is not necessarily irreversible.

The Proposed Action or Implementation Alternative would also irretrievably consume economic resources, electrical energy, and various types of fuel from construction and demolition activities.

CHAPTER 5
REFERENCES

5. REFERENCES

Clifton, Brian, 2000. Cascade County Department of Health, Air Quality Division. September.

Dorton, Sgt James, 2000. Personal communication. 341 SW/SGOAB. September.

Duff, Daniel, 2001. Personal communication. 341 CES/CEV. February.

Duff, Daniel, 2000. Personal communication. 341 CES/CEV. November.

Federal Interagency Committee for Wetland Determination, 1989. *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USDA Soil Conservation Service. Washington D.C.

Guinan, Linda, 2000. City of Great Falls, Community Development Department. City building permit data. September.

Hattersley, Jo Ann, 2000. State of Montana, Building Codes Division. County building permit data. September.

Heckler, Dave, 2001. Personal communication. 341 CES/CEVC. February.

Heckler, Dave, 2000. Personal communication. 341 CES/CEVC. September.

Hodges, Jim, 2000. Personal communication. 341 CES/CEVC. June and November.

MBMG— *see* Montana Bureau of Mines and Geology

Montana Bureau of Mines and Geology, 2000a. *Earthquake Stats*. Office of Earthquake Studies. http://mbmgsun.mtech.edu/eqstats.htm

Montana Bureau of Mines and Geology, 2000b. *Groundwater Information Center Report for 266 Lithology Records in Township 20 North, Range 5 East.* Groundwater Information Center. http://mbmggwic.mtech.edu/

MDEQ— *see* Montana Department of Environmental Quality

Montana Department of Environmental Quality, 2000a. Year 2000 Montana 303 (d) List. *A Compilation of Impaired and Threatened Waterbodies in Need of Water Quality Restoration*, Part A, Water Quality Assessment Reports. http://www.deq.state.mt.us/ppa/mdm/water/303dlist/map%20scans/Missouri-Sun-Smith.pdf

Montana Department of Environmental Quality, 2000b. *Citizens Guide to Air Quality in Montana*. http://www.deq.state.mt.us/ppa/mdm/air/guidecover

Montana Department of Labor & Industry, 2000. Unemployment data.

Montana Fish, Wildlife & Parks, 2000. Website showing range in Montana where species have been documented. http://www.fwp.state.mt.us/wildlife/endangered

MGA— *see* Montana Groundwater Atlas

Montana Groundwater Atlas, 2000. Montana Groundwater Atlas Online. http://nris.state.mt.us/wis/copy_of_mtgwatol/gwat-main.htm

Montana Natural Heritage Program, 2000. Montana Species of Special Concern. Internet: http://orion2.nris.state.mt.us/mtnhp/plants

Morris, Jim, 2000. Personal communication. 341 CES/CEVV. June.

NCRP— *see* National Council on Radiation Protection and Measurements

National Council on Radiation Protection and Measurements, 1987. *Ionizing Radiation Exposure of the Population of the United States.* Report No. 93, Bethesda, MD.

Phillips, MSgt Dave, 2000. Personal communication. 341 MXS/LGMW. June, September, and November.

Raisch, Robert, 2000. Personal communication. Montana Department of Environmental Quality, Resource Protection Planning Bureau. September.

SCAQMD — *see* South Coast Air Quality Management District

South Coast Air Quality Management District, 1992. *Draft CEQA Air Quality Handbook.* May.

Staudinger, Capt Tiffany, 2000. Personal communication. 341 CES/CECP. June through November.

Thuman, Albert and Richard Miller, 1976. *Secrets of Noise Control.* 2nd ed. Atlanta: Fairmont Press.

USAF — *see* U.S. Air Force

U.S. Air Force, 2000a. *Draft Air Emissions Inventory Report.* March.

U.S. Air Force, 2000b. *Hazardous Materials Emergency Response Plan (HAZMAT).* January.

U.S. Air Force, 2000c. *Well Installation Report, Deep Monitoring Well for IRP Site LF-19, Landfill Northeast of WSA.* January.

U.S. Air Force, 2000d. *Requirements Document.* June.

U.S. Air Force, 2000e. *Final Environmental Assessment for Outgrant to Montana Army National Guard.* May.

U.S. Air Force, 2000f. *General Plan for Malmstrom Air Force Base, Montana.*

U.S. Air Force, 2000g. An Evaluation of the Vegetation, Wildlife, and Aquatic Resources of Malmstrom Air Force Base. August.

U.S. Air Force, 1999a. *Traffic Signal Warrant Study Report, NE Bypass.* October.

U.S. Air Force, 1998a. *Storm Water Pollution Prevention Plan.* December.

U.S. Air Force, 1998b. *Air Emissions Assessment Report, Title V Air Emissions Inventory for 1996.* April.

U.S. Air Force, 1998c. *Gate Evaluation and Traffic Analysis Study.* November.

U.S. Air Force, 1996a. *Restoration Management Action Plan.* December.

U.S. Air Force, 1996b. *Pollution Prevention Management Action Plan.* April.

U.S. Air Force, 1996c. *Fish and Wildlife Plan.* May.

U.S. Air Force, 1996d. *Climatic Brief.* Air Weather Service. May.

U.S. Air Force, 1995. *Prehistoric and Historic Resources Field Survey Report.* March.

U.S. Air Force, 1994a. *General Discharge Permit for Stormwater Associated with Industrial Activity.* October.

U.S. Air Force, 1994b. *Endangered Species Biological Survey, Malmstrom AFB.* December.

U.S. Air Force, 1992. *Seismic Design for Buildings.* Air Force Manual 88-3. October.

U.S. Army, 1992. *Environmental Noise Study Number 52-34-QT49-92, Helicopter Stationing and Small Arms Noise*, Montana Army National Guard. U.S. Army Environmental Hygiene Agency. September.

U.S. Army, 1978. Construction Engineering Research Laboratory (CERL). *Construction Site Noise Control, Cost-Benefit Estimation Technical Background.* January.

U.S. Bureau of Economic Analysis, 2000. Employment and labor force data.

U.S. Bureau of the Census, 2000. 1990 Census of Population and Housing; USA Counties 1998 (population, demographic, and poverty data).

USDA — *see* U.S. Department of Agriculture

U.S. Department of Agriculture, 1982. *Soil Survey of Cascade County, Montana.* January.

USEPA — *see* U.S. Environmental Protection Agency

U.S. Environmental Protection Agency, 2000a. *EPA Revokes the 1-hour Ozone Standard for Most Counties.* http://www.epa.gov/oar/oaqps/greenbk/ozone1hr/may98

U.S. Environmental Protection Agency, 2000b. *AP-42: Compilation of Air Pollutant Emission Factors Mobile Sources.* http://www.epa.gov/oms/ap42.htm

USFWS — *see* U.S. Fish and Wildlife Service

U.S. Fish and Wildlife Service, 2000. Endangered Species Program. http://endangered.fws.gov

USGS — *see* U.S. Geological Survey.

U.S. Geological Survey, 2000a. *Geologic Hazards, Western States Faults* http://ghtmaps01.cr.usgs.gov/wsfaults.html#Map

U.S. Geological Survey, 2000b. National Earthquake Information Center. Earthquake Data Base. http://gldss7.cr.usgs.gov/neis/epic/epic.html

U.S. Geological Survey, 1994a. Northeast Great Falls 7.5 Minute Quadrangle Topographic Map.

U.S. Geological Survey, 1994b. Southeast Great Falls 7.5 Minute Quadrangle Topographic Map.

Verzuh, Rudy, 2000. Personal communication. 341 CES/CEVC. June, October, and December.

WRCC— *see* Western Regional Climate Center

Western Regional Climate Center, 2000. Local Climate Summary for Great Falls, Montana. http://www.wrcc.dri.edu/summary/lcd.html

This page intentionally left blank.

CHAPTER 6
LIST OF PREPARERS

6. LIST OF PREPARERS

This Environmental Assessment has been prepared by HQ AFSPC, HQ AFCEE, and the 341st Civil Engineer Squadron at Malmstrom AFB with contractual assistance from LABAT-ANDERSON INCORPORATED. The following personnel were involved in the preparation of this report:

Dean P. Converse, LABAT-ANDERSON INCORPORATED, Environmental Analyst
B.S., 1998, Geography – Environmental Studies, University of Nebraska at Lincoln
Years of Experience: 1

Elizabeth J. Gibeau, HQ AFSPC/CEVP, Environmental Engineer
B.S., 1986, Geological Engineering, South Dakota School of Mines and Technology, Rapid City
Years of Experience: 12

Brian G. Goss, LABAT-ANDERSON INCORPORATED, Project Manager
B.A., 1979, Geology, Franklin and Marshall College, Lancaster, Pennsylvania
M.S., 1983, Geochemistry, The Pennsylvania State University, State College
Years of Experience: 15

Carmen L. Hansen, LABAT-ANDERSON INCORPORATED, Executive Administrator
Years of Experience: 10

Robert L. Lopez, HQ AFCEE/ECA
B.S., 1976, Biology, Texas A&M University, Corpus Christi, Texas
M.S., 1998, Environmental Science, University of Texas at San Antonio
Years of Experience: 15

Randall G. McCart, LABAT-ANDERSON INCORPORATED, Senior Environmental Analyst
B.S., 1981, Geography, University of Nebraska at Omaha
M.A., 1984, Geography, University of Nebraska at Omaha
B.S., 1987, Education, University of Nebraska at Omaha
Years of Experience: 13

Joseph E. Milligan, Director of Environmental Research, LABAT-ANDERSON INCORPORATED, Senior Reviewer
B.S., 1963, Agriculture, Rutgers University, New Brunswick, New Jersey
M.S., 1975, Animal Science, Rutgers University
Ph.D., 1979, Nutrition/Physiology, Rutgers University
Years of Experience: 33

Sheri A. Rivera, LABAT-ANDERSON INCORPORATED, Senior Environmental Analyst
B.S., 1989, Geography, University of Nebraska at Omaha
M.S., 1995, Urban Studies, University of Nebraska at Omaha
Years of Experience: 12

Kristin L. Sutherlin, LABAT-ANDERSON INCORPORATED, Senior Environmental Analyst
B.A., 1986, Economics, Louisiana State University in Shreveport
M.A., 1988, Urban Studies (Planning), University of Maryland, College Park
Years of Experience: 14

Captain Raymond Tsui, HQ AFSPC/CE, Program Manager
B.S., 1990, Mechanical Engineering, Cornell University, Ithaca, New York
M.S., 1994, Astronautical Engineering, Air Force Institute of Technology, Wright-Patterson AFB, Ohio
Years of Experience: 10

Rudy Verzuh, 341 CES/CEVC, Malmstrom AFB, Environmental Planner
B.S., 1983, Chemical Engineering, Montana State University
Years of Experience: 18

Christopher R. Weber, LABAT-ANDERSON INCORPORATED, Environmental Analyst
B.S., 1998, Environmental Science, Creighton University, Omaha
Years of Experience: 1

Hope M. Wise, LABAT-ANDERSON INCORPORATED, Environmental Analyst
B.S., 1997, Wildlife Biology, University of Nebraska at Kearney
Years of Experience: 2

APPENDIX A

AGENCY LETTERS AND CONSULTATION

APPENDIX A.
Agency Letters and Consultation

This appendix contains copies of the scoping letters that were sent to agencies soliciting their concerns regarding the Description of the Proposed Action and Alternatives (DOPAA), along with a copy of the response letter received. The appendix also contains copies of the letters that were sent to agencies with the Environmental Assessment, as well as the response letters received. Following the letters is a copy of the Notice of Availability published in the Great Falls Tribune on February 27, 2001.

The following table lists the letters in the order in which they are presented in the appendix and the number assigned to each letter.

Table A-1
Agency Commentors on the DOPAA and EA for the WMMSC

Number	Agency Scoping Letters	Date of Letter
1.	Montana Department of Environmental Quality	August 3, 2000
2.	Montana Department of Fish, Wildlife, and Parks	August 3, 2000
3.	Great Falls City-County Planning Board	August 3, 2000
	Agency Response to Scoping Letter and DOPAA	
4.	Great Falls City-County Planning Board	August 21, 2000
	Agency draft EA Letters	
5.	Montana Department of Environmental Quality	December 21, 2000
6.	Montana Department of Fish, Wildlife, and Parks	December 21, 2000
7.	U.S. Army Corps of Engineers, Helena Regulatory Office	December 21, 2000
8.	U.S. Fish and Wildlife Service	December 21, 2000
9.	Cascade County Commissioners	December 21, 2000
10.	Great Falls City-County Planning Board	December 21, 2000
	Agency Response to Draft EA	
11.	Montana Department of Fish, Wildlife, and Parks	December 22, 2000
	Agency Final Draft EA Letters	
12.	Montana Department of Environmental Quality	February 23, 2001
13.	Montana Department of Fish, Wildlife, and Parks	February 23, 2001
14.	U.S. Army Corps of Engineers, Helena Regulatory Office	February 23, 2001
15.	U.S. Fish and Wildlife Service	February 23, 2001
16.	Cascade County Commissioners	February 23, 2001
17.	Great Falls City-County Planning Board	February 23, 2001
	Responses to Final Draft EA	
18.	Liberty Electric	March 3, 2001
19.	U.S. Army Corps of Engineers, Helena Regulatory Office	March 14, 2001
20.	U.S. Fish and Wildlife Service	March 22, 2001

This page intentionally left blank.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

①

HQ AFCEE/ECA
3207 North Road
Brooks AFB TX 78235-5363

3 Aug 00

State of Montana
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-1202

Dear Sir or Madam

The U.S. Air Force plans to prepare an Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act (NEPA), the Air Force must assess the potential environmental impacts of the proposed action and alternatives.

The purpose of the proposed upgrade is to meet current requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached Description of the Proposed Action and Alternatives (DOPAA) more fully explains the purpose and need and discusses the alternative actions to achieve the upgrade.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other federal, state, and local agencies on the proposal. Please identify any resources within your purview that may be potentially impacted. Maps are included within the DOPAA to assist your office in reviewing the proposal.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert L. Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely

- signed -

JOHN D. CLARK
Acting Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attachment:
Description of the Proposed Action and Alternatives

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

(2)

HQ AFCEE/ECA
3207 North Road
Brooks AFB TX 78235-5363

3 Aug 00

Montana Department of Fish Wildlife & Parks
4600 Giant Springs Road
Great Falls, MT 59401

Dear Sir or Madam

The U.S. Air Force plans to prepare an Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act (NEPA), the Air Force must assess the potential environmental impacts of the proposed action and alternatives.

The purpose of the proposed upgrade is to meet current requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached Description of the Proposed Action and Alternatives (DOPAA) more fully explains the purpose and need and discusses the alternative actions to achieve the upgrade.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other federal, state, and local agencies on the proposal. Please identify any resources within your purview that may be potentially impacted. Maps are included within the DOPAA to assist your office in reviewing the proposal.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert L. Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely

- Signed -

JOHN D. CLARK
Acting Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attached:
Description of the Proposed Action and Alternatives

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

③

HQ AFCEE/ECA
3207 North Road
Brooks AFB TX 78235-5363

3 Aug 00

Great Falls City-County Planning Board
Civic Center
P.O. Box 5021
Great Falls, MT 59403-5021

Dear Sir or Madam

The U.S. Air Force plans to prepare an Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act (NEPA), the Air Force must assess the potential environmental impacts of the proposed action and alternatives.

The purpose of the proposed upgrade is to meet current requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached Description of the Proposed Action and Alternatives (DOPAA) more fully explains the purpose and need and discusses the alternative actions to achieve the upgrade.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other federal, state, and local agencies on the proposal. Please identify any resources within your purview that may be potentially impacted. Maps are included within the DOPAA to assist your office in reviewing the proposal.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert L. Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely

JOHN D. CLARK
Acting Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attached:
Description of the Proposed Action and Alternatives

④

GREAT FALLS CITY-COUNTY PLANNING BOARD

Serving Cascade County and the City of Great Falls, Montana

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

August 21, 2000

Re: DOPAA- EA on upgrade, WMMSC, Malmstrom AFB, MT

Dear Mr. Lopez:
This office is in receipt of the above referenced document, and it has been reviewed by me and some members of our staff. The only environmental issue at Malmstrom of which I am aware has to do with drainage, and I have no idea if that issue is relevant to the proposed WMMSC upgrade.

There are three coulees (creeks) that drain base property and flow generally northward to the Missouri River. Just prior to reaching the river, the two smaller coulees flow into the larger one known as Whitmore Ravine. It is my understanding that drainage from Malmstrom entering these rather highly erodable coulees exceeds historic rates of runoff. This has resulted in accelerated erosion that over the years has formed a delta of silt in the Missouri River. When Col. Fred Rausch was stationed at Malmstrom, he and I had discussed this matter and he was looking into it at the time he was transferred. The immediate solution to the problem would be for the base to build one or more small detention ponds designed to release storm water at historic rates. If this issue is within the scope of the WMMSC upgrade, then we would request that it be addressed in the Environmental Assessment document. If it is not within the scope of the upgrade EA, it still needs to be addressed somehow.

If you would like to discuss this matter further, please contact me at (406) 455-8431. My e-mail address is rhorne@ci.great-falls.mt.us. I can also put you in contact with people who know far more about this problem than I. Thank you for the opportunity to comment, and for your attention to this matter.

Sincerely,

Bob Horne

Robert Horne, Jr. AICP
Planning Director

CIVIC CENTER, P.O. BOX 5021, GREAT FALLS, MT 59403-5021 (406)771-1180, FAX (406)452-6256

CC: Col. Thomas Deppe
Commander, 341st Space Wing
21 77th St. North, Suite 144
Malmstrom AFB, MT 59402-7538

Col. James K. Eken
Commander, 341st Support Group
21 77th St. North, Rm. 146
Malmstrom AFB, MT 59402-7538

Allan Rollo
808 52nd St. South
Great Falls, MT 59405

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

5

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

21 Dec 00

State of Montana
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-1202

Dear Sir or Madam:

The U.S. Air Force has prepared a Draft Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Draft EA. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely,

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Atch: Draft EA

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

6

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

21 Dec 00

MT Dept of Fish Wildlife & Parks
4600 Giant Springs Road
Great Falls, MT 59401

Dear Sir or Madam:

The U.S. Air Force has prepared a Draft Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Draft EA. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely,

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Atch: Draft EA

Printed on Recycled Paper

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

7

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

21 Dec 00

Mr. Alan Steinle
U.S. Army Corps of Engineers
Helena Regulatory Office
301 South Park Avenue, Drawer 10014
Helena, MT 59626-0014

Dear Mr. Steinle:

The U.S. Air Force has prepared a Draft Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Draft EA. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely,

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Atch: Draft EA

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

8

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

21 Dec 00

Mr. Kemper McMaster
U.S. Fish & Wildlife Service
Montana Field Office
100 N. Park, Suite 320
Helena, MT 59601

Dear Mr. McMaster:

The U.S. Air Force has prepared a Draft Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Draft EA. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely,

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Atch: Draft EA

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

9

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

21 Dec 00

Cascade County Commissioners
325 Second Avenue North
Great Falls, MT 59401

Dear Sir or Madam:

The U.S. Air Force has prepared a Draft Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Draft EA. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely,

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Atch: Draft EA

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

10

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

21 Dec 00

Mr. Ben Rangel, Senior Planner
Great Falls City-County Planning Board
Civic Center
P.O. Box 5021
Great Falls, MT 59403-5021

Dear Mr. Rangel:

The U.S. Air Force has prepared a Draft Environmental Assessment (EA) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Draft EA. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Lopez at 210-536-6545.

Sincerely,

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Atch: Draft EA

Montana Fish, Wildlife & Parks

11

4600 Giant Springs Road
Great Falls, MT 59405

December 22, 2000

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235

Dear Mr. Lopez,

My staff and I have reviewed the draft Environmental Assessment for the upgrade of the Weapons and Munitions Maintenance and Storage Complex at Malstrom Air Force Base.

We have looked particularly at potential impacts to the Missouri River, local wetlands, Threatened and Endangered Species, resident wildlife, and cultural resources.

In our opinion the proposed upgrade will not have a significant impact on any of these resources, nor do we see any significant cumulative impacts.

The proposed upgrade should enhance safety and environmental protections.

We thank you for the opportunity to comment.

Sincerely,

Mike Aderhold

Mike Aderhold
Region 4 Supervisor

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

12

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

23 Feb 01

State of Montana
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-1202

Dear Sir or Madam

The U.S. Air Force has prepared a Final Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA and FONSI more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Final Draft EA and Draft FONSI. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Robert Lopez at 210-536-6545.

Sincerely

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attachment:
Final Draft EA and Draft FONSI

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

13

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

23 Feb 01

MT Dept of Fish Wildlife & Parks
4600 Giant Springs Road
Great Falls, MT 59401

Dear Sir or Madam

The U.S. Air Force has prepared a Final Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA and FONSI more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Final Draft EA and Draft FONSI. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Robert Lopez at 210-536-6545.

Sincerely

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attachment:
Final Draft EA and Draft FONSI

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

14

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

23 Feb 01

Mr. Alan Steinle
U.S. Army Corps of Engineers
Helena Regulatory Office
301 South Park Avenue, Drawer 10014
Helena, MT 59626-0014

Dear Mr. Steinle

The U.S. Air Force has prepared a Final Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA and FONSI more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

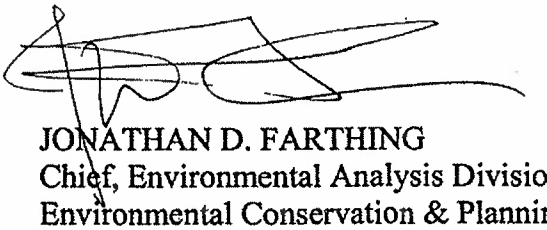
In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Final Draft EA and Draft FONSI. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Robert Lopez at 210-536-6545.

Sincerely



JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attachment:
Final Draft EA and Draft FONSI

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

15

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

23 Feb 01

Mr. Kemper McMaster
U.S. Fish & Wildlife Service
Montana Field Office
100 N. Park, Suite 320
Helena, MT 59601

Dear Mr. McMaster

The U.S. Air Force has prepared a Final Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA and FONSI more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Final Draft EA and Draft FONSI. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Robert Lopez at 210-536-6545.

Sincerely

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attachment:
Final Draft EA and Draft FONSI

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

16

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

23 Feb 01

Cascade County Commissioners
325 Second Avenue North
Great Falls, MT 59401

Dear Sir or Madam

The U.S. Air Force has prepared a Final Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA and FONSI more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Final Draft EA and Draft FONSI. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Robert Lopez at 210-536-6545.

Sincerely

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attachment:
Final Draft EA and Draft FONSI

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

17

HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

23 Feb 01

Mr. Ben Rangel, Senior Planner
Great Falls City-County Planning Board
Civic Center
P.O. Box 5021
Great Falls, MT 59403-5021

Dear Mr. Rangel

The U.S. Air Force has prepared a Final Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom Air Force Base (AFB), Montana. According to the National Environmental Policy Act, the Air Force must assess the potential environmental impacts of the Proposed Action and alternatives.

The purpose of the proposed upgrade is to meet requirements for storage and handling of modern weapons systems. The Air Force proposes to upgrade and refurbish the WMMSC to enhance mission effectiveness, protect the environment, and meet all current security and safety requirements.

The attached EA and FONSI more fully explains the purpose and need, the alternative actions to achieve the upgrade, and the potential environmental impacts of the Proposed Action and alternatives.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, the Air Force is requesting input from other Federal, state, and local agencies on the Final Draft EA and Draft FONSI. Please evaluate any resources within your purview that may be potentially impacted.

Please provide any comments or information within 30 calendar days of receipt of this letter. Responses should be sent directly to:

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Your assistance in providing information is greatly appreciated. If you have any questions, please call Mr. Robert Lopez at 210-536-6545.

Sincerely

JONATHAN D. FARTHING
Chief, Environmental Analysis Division
Environmental Conservation & Planning Directorate

Attachment:
Final Draft EA and Draft FONSI

LIBERTY ELECTRIC
99 Gibson Flats Road • Great Falls MT 59405
grlfalls@libertyelectricinc.com

18

FAX Cover Sheet

DATE: 3-3-01

TO: MR. Robert Lopez
BROOKS AFB, TEXAS

FROM: WAYNE YEAROUT

RE: WMMSC upgrade at MAFB, MONTANA

CC:

NUMBER OF PAGES INCLUDING COVER SHEET: 1

MESSAGE: Dear Mr. Lopez,

Would this project be open-bid or of the design build type? Who would oversee the project, the Corps of Engineers or the Air Force.

Thank you,
Wayne Yearout

phone 406-761-6388 - In Montana - 800-823-8232 406-761-0137 fax

Chester Cut Bank Fort Benton Great Falls Missoula Shelby

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

19

REPLY TO
ATTENTION OF

March 14, 2001

Helena Regulatory Office
301 South Park, Drawer 10014,
Helena, Montana 59626-0014
Phone(406) 441-1375 Fax(406) 441-1380

RE: Upgrade of WMMSC
Corps File No. 200190120

Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

Dear Mr. Lopez:

We have reviewed your Final Draft Environmental Assessment for the proposed upgrade of the Weapons and Munitions Maintenance and Storage Complex(WMMSC) at Malmstrom Air Force Base (AFB) located near Great Falls, Cascade County, Montana.

Under the authority of Section 404 of the Clean Water Act, Department of the Army permits are required for the discharge of fill material below the ordinary high water mark of our nation's rivers, streams, lakes or in wetlands.

Based on the information provided that no fill material will be placed either temporarily or permanently in a wetland or below the ordinary high water mark of any waterbody, this office has determined that no Department of the Army permit is required for this project. However, this does not eliminate the requirement to obtain other applicable federal, state, tribal and local permits.

If you have any questions, please call **Bob Mc Inerney** of this office at (406) 441-1375, and reference File No. **200190120**.

Sincerely,

Allan Steinle

Allan Steinle
Montana Program Manager

United States Department of the Interior

FISH AND WILDLIFE SERVICE
MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

20

M.37 (I)

March 22, 2001

Mr. Robert Lopez
HQ AFCEE/ECA
3207 North Road
Brooks AFB, TX 78235-5363

RE: Upgrade of Weapons and Munitions Maintenance and Storage Complex (WMMSC)
Malstrom Air Force Base (AFB), Montana

The U.S. Fish and Wildlife Service has reviewed the subject project proposal and determined that no federally-listed species or designated critical habitat occurs within the project area; consequently, this concludes Section 7 consultation and no further review of this project is necessary.

R. Mark Wilson
Field Supervisor

3/22/01
Date

NOTICE OF AVAILABILITY
FINAL DRAFT ENVIRONMENTAL ASSESSMENT
AND DRAFT FINDING OF NO SIGNIFICANT IMPACT
FOR THE UPGRADE OF THE WEAPONS AND MUNITIONS
MAINTENANCE AND STORAGE COMPLEX
MALMSTROM AFB, MONTANA

An Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality implementing NEPA to analyze the potential environmental consequences of upgrading the Weapons and Munitions Maintenance and Storage Complex (WMMSC) at Malmstrom AFB, MT. The Air Force proposes to construct new facilities and upgrade existing facilities. The EA analyzes potential impacts from construction on air quality; geology and soils; groundwater, surface water, and floodplains; biological and cultural resources; sensitive noise receptors; socioeconomic conditions; environmental justice; the transportation network; and environmental programs. An alternative to constructing a combined Munitions Storage Area and Weapons Storage Area was considered and analyzed in the EA along with the No Action Alternative. The Final Draft EA and Draft Finding of No Significant Impact (FONSI), dated February 2001, are available for review at the following location:

Great Falls Public Library
301 2nd Ave. North
Great Falls, MT 59401-2593

Public comments on the EA will be accepted through March 29, 2001. Written comments and inquiries on the EA should be directed to Mr. Robert Lopez, HQ AFCEE/ECA, 3207 North Road, Brooks AFB, TX 78235-5363. Fax: (210) 536-3890. Email: robert.lopez@hqafcee.brooks.af.mil

This page intentionally left blank.

APPENDIX B
AIR QUALITY INFORMATION

APPENDIX B.
Air Quality Information

This appendix contains spreadsheets showing the calculation of potential air quality impacts related to the Proposed Action and Implementation Alternative.

This page intentionally left blank.

Table B-1. Air Emissions from the Upgrade of the WMMSC At Malmstrom AFB, MT								
Proposed Action								
Two years to construct (500 work days)								
				Summary (emissions in tons per year)				
Grading		**PM-10**		**CO**	**VOC**	**NOx**	**SOx**	**PM-10**
			Total Const.	**7.03**	**1.13**	**13.45**	**1.33**	**44.26**
Area graded (acres)		16.1						
Emission factor (lbs/acre/month)[1]		2400		**Summary (emissions in tons per day)**				
Length of activity (months)		2		**CO**	**VOC**	**NOx**	**SOx**	**PM-10**
PM-10 total		77280	lbs	**0.01**	**0.00**	**0.03**	**0.00**	**0.09**
		38.64	tons					
[1] EPA emission factor of 1.2 tons/acre/month for semlarid areas.								
Demolition								
Total demolltion consists of 4 buildings of 9300 square feet each, 3 buildings of 6000 sq ft each.								
Demolition emission factor for PM10								
0.00042	lbs/ft^3 of building volume, times days							
552000	ft3 building volume							
70	days							
16228.8	lbs PM_{10}							
8.11	tons PM_{10}							
2.70	**tons PM_{10} per phase**							
Assumes building height is an average of 10 feet, 10 days for each building, 7 buildings total								
Construction								
Equipment	**Days**	**Hours/ day**	**Pieces**	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**
Bulldozer	120	8	2	*1.03*	*0.21*	*2.16*	*0.21*	*0.21*
Emissions (lbs)				1975.68	395.14	4148.93	395.14	395.14
Dump Trucks	100	8	2	*1.80*	*0.19*	*4.17*	*0.45*	*0.26*
Emissions (lbs)				2880.00	304.00	6672.00	720.00	416.00
Asphalt Paver	10	8	1	*0.64*	*0.09*	*2.09*	*0.18*	*0.18*
Emissions (lbs)				50.96	7.28	167.44	14.56	14.56
Backhoe/loader	150	8	1	*1.16*	*0.23*	*1.69*	*0.15*	*0.15*
Emissions (lbs)				1386.00	277.20	2032.80	184.80	184.80
Crane	300	4	1	*1.75*	*0.58*	*4.46*	*0.39*	*0.58*
Emissions (lbs)				2095.20	698.40	5354.40	465.60	698.40
Water Truck	380	1	1	*1.80*	*0.19*	*4.17*	*0.45*	*0.26*
Emissions (lbs)				684.00	72.20	1584.60	171.00	98.80
Concrete Paver	20	8	1	*1.30*	*0.26*	*2.86*	*0.26*	*0.26*
Emissions (lbs)				208.00	41.60	457.60	41.60	41.60
Concrete Truck	50	8	1	*1.80*	*0.19*	*4.17*	*0.45*	*0.26*
Emissions (lbs)				720.00	76.00	1668.00	180.00	104.00
Scraper	30	8	1	*2.94*	*0.27*	*5.07*	*0.53*	*0.80*
Emissions (lbs)				704.88	64.08	1217.52	128.16	192.24
Flatbed Truck	100	8	1	*1.80*	*0.19*	*4.17*	*0.45*	*0.26*
Emissions (lbs)				1440.00	152.00	3336.00	360.00	208.00
Total Emissions	lbs			12144.72	2087.90	26639.29	2660.86	2353.54
	tons			**6.07**	**1.04**	**13.32**	**1.33**	**1.18**

Table B-1. Air Emissions from the Upgrade of the WMMSC At Malmstrom AFB, MT								
Proposed Action								
Worker Vehicle Trips								
Exhaust				CO	VOC	NOx	SOx	PM-10
Number of workers	30		EF (g/mi)	3.34	0.28	0.45	0	0.01
Commute (miles)	15		lbs/mi	0.007357	0.00061674	0.000991189	0	2.203E-05
Days	500		Amt (lbs)	1655.29	138.77	223.02	0.00	4.956
Total Miles	225,000		**Amt (tons)**	**0.83**	**0.07**	**0.11**	**0.00**	**0.002**
EF = Emission Factor for calendar year 2000 (USEPA,2000) in grams per mile								
Hot Startup				CO	VOC	NOx		
Vehicles	30		EF (g/trip)	8.12	0.83	0.89		
Days	500		lbs/trip	0.017885	0.001828194	0.001960352		
Total Trips	15000		Amt (lbs)	268	27	29		
			Amt (tons)	**0.13**	**0.01**	**0.01**		
			TOTAL	**0.96**	**0.08**	**0.13**		
PM-10 Trucks Driving on Paved Roads								
Miles/round trip	20							
Trucks/hour	1							
Hours of activity	4							
Days	80		EF (lbs/mile)	0.4	with street cleaning			
VMT	6400		TOTAL (lbs)	2560	**Total (tons)**	**1.28**		
PM-10 Trucks Driving on Unpaved Roads								
Miles/round trip	1							
Trucks/hour	1							
Hours of activity	0.5							
Days	80		EF (lbs/mile)	23				
VMT	40		TOTAL (lbs)	920	**Total (tons)**	**0.46**		
SUMMARY	Amounts in tons per year							
	CO	**VOC**	**NOx**	**SOx**	**PM-10**			
Grading (fugitive dust)					38.64			
Demolition					2.70			
Trucks - paved roads					1.28			
Trucks - unpaved roads					0.46			
Construction Equipment	6.07	1.04	13.32	1.33	1.18			
Worker Vehicles	0.96	0.08	0.13	0.00	0.002			
TOTAL Construction	**7.03**	**1.13**	**13.45**	**1.33**	**44.26**			
Pounds	14068	2254	26892	2661	88528			
Pounds / day avg	**28**	5	**54**	5	177			
Tons/day avg	**0.01**	**0.00**	**0.03**	**0.00**	0.09			
Sources:								
US EPA AP42, 1985, 2000								
CEQA SCAQMD, 1992								
US EPA Non-Road Engine and Vehicle Study, 1991								

Table B-1. Air Emissions from the Upgrade of the WMMSC At Malmstrom AFB, MT								
Proposed Action								
Assumptions (per phase)								
Demolition			70	days				
Crane			50	days				
Bulldozer			60	days				
Dump trucks (2)			70	days				
Loader			70	days				
Grading and Excavating			40	days				
Scraper (2)			30	days				
Bulldozers (2)			30	days				
Backhoe			30	days				
Dump Truck			30	days				
Water Truck			30	days				
Construction			390	days				
Crane			250	days				
Water Truck			350	days				
Concrete Truck			50	days				
Flatbed truck			100	days				
Backhoe (utilities)			50	days				
Bulldozer (final grading)			30	days				
Concrete Paver roads and approaches)			20	days				
Asphalt Paver			10	days				
Great Falls landfill is about 10 miles from the WSA area - assume 20 mile round trip on paved roads for trucks								
hauling rubble and 1/2 mile each way on unpaved roads (1 mile total).								
Dump trucks on roads - assume 70 days for excavation and 10 days of grading.								

This page intentionally left blank.

Table B-2. Air Emissions from the Upgrade of the WMMSC At Malmstrom AFB, MT								
Implementation Alternative								
Two years to construct (515 work days)								
				Summary (emissions in tons per year)				
Grading		PM-10		CO	VOC	NOx	SOx	PM-10
			Total Const.	7.40	1.18	14.24	1.41	52.27
Area graded (acres)		17.6						
Emission factor (lbs/acre/month)[1]		2400		Summary (emissions in tons per day)				
Length of activity (months)		2.2		CO	VOC	NOx	SOx	PM-10
PM-10 total		92928	lbs	**0.01**	**0.00**	**0.03**	**0.00**	**0.10**
		46.464	**tons**					
[1] EPA emission factor of 1.2 tons/acre/month for semiarid areas.								
Demolition								
Total demolition consists of 4 buildings of 9300 square feet each, 3 buildings of 6000 sq ft each.								
Demolition emission factor for PM10								
0.00042	lbs/ft^3 of building volume, times days							
552000	ft3 building volume							
70	days							
16228.8	lbs PM_{10}							
8.11	tons PM_{10}							
2.70	**tons PM_{10} per phase**							
Assumes building height is an average of 10 feet, 10 days for each building, 7 buildings total								
Construction								
Equipment	**Days**	**Hours/ day**	**Pieces**	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**
Bulldozer	130	8	2	*1.03*	*0.21*	*2.16*	*0.21*	*0.21*
Emissions (lbs)				2140.32	428.06	4494.67	428.06	428.06
Dump Trucks	105	8	2	*1.80*	*0.19*	*4.17*	*0.45*	*0.26*
Emissions (lbs)				3024.00	319.20	7005.60	756.00	436.80
Asphalt Paver	10	8	1	*0.64*	*0.09*	*2.09*	*0.18*	*0.18*
Emissions (lbs)				50.96	7.28	167.44	14.56	14.56
Backhoe/loader	160	8	1	*1.16*	*0.23*	*1.69*	*0.15*	*0.15*
Emissions (lbs)				1478.40	295.68	2168.32	197.12	197.12
Crane	305	4	1	*1.75*	*0.58*	*4.46*	*0.39*	*0.58*
Emissions (lbs)				2130.12	710.04	5443.64	473.36	710.04
Water Truck	390	1	1	*1.80*	*0.19*	*4.17*	*0.45*	*0.26*
Emissions (lbs)				702.00	74.10	1626.30	175.50	101.40
Concrete Paver	25	8	1	*1.30*	*0.26*	*2.86*	*0.26*	*0.26*
Emissions (lbs)				260.00	52.00	572.00	52.00	52.00
Concrete Truck	55	8	1	*1.80*	*0.19*	*4.17*	*0.45*	*0.26*
Emissions (lbs)				792.00	83.60	1834.80	198.00	114.40
Scraper	35	8	1	*2.94*	*0.27*	*5.07*	*0.53*	*0.80*
Emissions (lbs)				822.36	74.76	1420.44	149.52	224.28
Flatbed Truck	105	8	1	*1.80*	*0.19*	*4.17*	*0.45*	*0.26*
Emissions (lbs)				1512.00	159.60	3502.80	378.00	218.40
Total Emissions	lbs			12912.16	2204.32	28236.01	2822.12	2497.06
	tons			**6.46**	**1.10**	**14.12**	**1.41**	**1.25**

Table B-2. Air Emissions from the Upgrade of the WMMSC At Malmstrom AFB, MT								
Implementation Alternative								
Worker Vehicle Trips								
Exhaust				**CO**	**VOC**	**NOx**	**SOx**	**PM-10**
Number of workers	30		EF (g/mi)	3.34	0.28	0.45	0	0.01
Commute (miles)	15		lbs/mi	0.0073568	0.00061674	0.000991189	0	2.2E-05
Days	515		Amt (lbs)	1704.94	142.93	229.71	0.00	5.105
Total Miles	231,750		**Amt (tons)**	**0.85**	**0.07**	**0.11**	**0.00**	**0.003**
EF = Emission Factor for calendar year 2000 (USEPA,2000) in grams per mile								
Hot Startup				**CO**	**VOC**	**NOx**		
Vehicles	20		EF (g/trip)	8.12	0.83	0.89		
Days	515		lbs/trip	0.0178855	0.001828194	0.001960352		
Total Trips	10300		Amt (lbs)	184	19	20		
			Amt (tons)	**0.09**	**0.01**	**0.01**		
			TOTAL	**0.94**	**0.08**	**0.12**		
PM-10 Trucks Driving on Paved Roads								
Miles/round trip	20							
Trucks/hour	1							
Hours of activity	4							
Days	85		EF (lbs/mile)	0.4	with street cleaning			
VMT	6800		TOTAL (lbs)	2720	**Total (tons)**	**1.36**		
PM-10 Trucks Driving on Unpaved Roads								
Miles/round trip	1							
Trucks/hour	1							
Hours of activity	0.5							
Days	85		EF (lbs/mile)	23				
VMT	42.5		TOTAL (lbs)	977.5	**Total (tons)**	**0.49**		
SUMMARY	Amounts in tons per year							
	CO	**VOC**	**NOx**	**SOx**	**PM-10**			
Grading (fugitive dust)					46.464			
Demolition					2.70			
Trucks - paved roads					1.36			
Trucks - unpaved roads					0.49			
Construction Equipment	6.46	1.10	14.12	1.41	1.25			
Worker Vehicles	0.94	0.08	0.12	0.00	0.003			
TOTAL Construction	**7.40**	**1.18**	**14.24**	**1.41**	**52.27**			
Pounds	14801	2366	28486	2822	104537			
Pounds / day avg	30	5	57	6	209			
Tons/day avg	**0.01**	**0.00**	**0.03**	**0.00**	**0.10**			
Sources:								
US EPA AP42, 1985, 2000								
CEQA SCAQMD, 1992								
US EPA Non-Road Engine and Vehicle Study, 1991								

Table B-2. Air Emissions from the Upgrade of the WMMSC At Malmstrom AFB, MT								
Implementation Alternative								
Assumptions (per phase)								
Demolition			70	days				
Crane			50	days				
Bulldozer			60	days				
Dump trucks (2)			70	days				
Loader			70	days				
Grading and Excavating			45	days				
Scraper (2)			35	days				
Bulldozers (2)			35	days				
Backhoe			35	days				
Dump Truck			35	days				
Water Truck			35	days				
Construction			400	days				
Crane			255	days				
Water Truck			355	days				
Concrete Truck			55	days				
Flatbed truck			105	days				
Backhoe (utilities)			55	days				
Bulldozer (final grading)			35	days				
Concrete Paver roads and approaches)			25	days				
Asphalt Paver			10	days				
Great Falls landfill is about 10 miles from the WSA area - assume 20 mile round trip on paved roads for trucks								
hauling rubble and 1/2 mile each way on unpaved roads (1 mile total).								
Dump trucks on roads - assume 70 days for excavation and 15 days of grading.								

This page intentionally left blank.

Printed on Recycled Paper